139-326

TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1890.

No. 225.

CHARLES HOFF AND PETER RENNER, APPELLANTS,

vs.

THE IRON CLAD MANUFACTURING COMPANY.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE SOUTHERN DISTRICT OF NEW YORK.

FILED OCTOBER 13, 1887.

by the President of the Mexican Republic, with the approbation of the Congress of that republic, and that the ratifications shall be exchanged at Washington within nine months from the date hereof, or sooner if possible.

In witness whereof the respective plenipotentiaries have signed the same and have affixed thereto the seals of their arms.

Done at Washington, the fourth day of July, in the year of our Lord one thousand eight hundred and sixty-eight.

WILLIAM H. SEWARD. [L. S.]
M. ROMERO. [L. S.]

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1 [L. S.] The President of the United States of America to Iron Clad Manufacturing Company, Greeting:

You are hereby commanded that you personally appear before the judges of the circuit court of the United States of America for the southern district of New York, in the second circuit court, in equity, on the first Monday of September, A. D. 1884, wherever the said court shall then be, to answer a bill of complaint exhibited against you in the said court by Charles Hoff and Peter Renner, and do further and receive what the said court shall have considered in that behalf; and this you are not to omit under the penalty on you of two hundred and fifty dollars.

Witness Honorable Morrison R. Waite, Chief Justice of the Supreme Court of the United States, at the city of New York, on the 11th day of August, in the year one thousand eight hundred and eighty-four, and of the Independence of the United States of America the one hundred and ninth.

TIMOTHY GRIFFITH, *Clerk.*

GEO. J. MURRAY,
Complainants' Sol'r.

The defendant is required to enter appearance in the above cause in the clerk's office of this court on or before the first Monday of September, 1884, or the bill will be taken *pro confesso* against it.

T. G., *Clerk.*

2 [Endorsed:] I hereby certify that on the 11th day of August, 1884, at the city of New York, in my district, I personally served the within subpœna upon the within-named Iron Clad Manufacturing Company by exhibiting to John J. Hinman, the president of said company, the within original and at the same time leaving with him a copy thereof. Dated Aug. 13, 1884. Joel B. Ehrhardt, U. S. marshal, S. D. of N. Y. U. S. circuit court. Filed Aug. 13, 1884. Timothy Griffith, clerk.

3 Circuit Court of the United States for the Southern District of New York.

CHARLES HOFF and PETER RENNER
vs.
IRON CLAD MANUFACTURING CO. } In Equity.

To the honorable judges of the circuit court of the United States for the southern district of New York:

Charles Hoff and Peter Renner, citizens of the United States residing at Cincinnati, county of Hamilton, State of Ohio, bring this their bill of complaint against the Iron Clad Manufacturing Co., a corporation incorporated under the laws of the State of New York and having its office and principal place of business at the city of New York, in the State of New York; and thereupon your orators complain and say—

That heretofore and before the 26th day of March, 1883, Charles Hoff, one of the complainants above named, was the original, true, first, and sole inventor of a certain new and useful improvement in coal-hods fully described in letters patent hereinafter mentioned, and which had not been known or used before his said invention, and which, at the time of his application for a patent, as hereinafter mentioned, had not been for more than two years in public use or on sale with his consent or allowance.

4 That prior to the issuing of the said letters patent hereinafter mentioned, to wit, on the 21st day of March, 1883, at the city of Cincinnati, the said Charles Hoff by assignment, duly signed and delivered and entered on record in the Patent Office of the United States, assigned one-half of all his right, title, and interest in and to said invention and discovery to his coplaintiff, Peter Renner, and requested that said patent might issue to himself and the said Peter Renner jointly for their respective interests therein.

And your orators further show unto your honors that the said Charles Hoff, being so as aforesaid the first inventor and discoverer of said improvements and being also a citizen of the United States, did jointly with his coplaintiff, Peter Renner, on the 19th of June, 1883, upon due application therefor, obtain letters patent of the United States for said invention, in due form of law, under the seal of the Patent Office of the United States, signed by the Secretary of the Interior and countersigned by the Commissioner of Patents of the United States, bearing date the day and year last aforesaid, and numbered No. 279,871, whereby there was granted and secured to Charles Hoff and Peter Renner, their heirs, administrators, assigns, or intended so to be, for the term of seventeen years from and after the date of said letters patent, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used the said invention and improvements, as set forth in said letters patent, which are now remaining on record in the Patent Office of the United States, and by virtue whereof said Charles Hoff and Peter

5 Renner became and now are the sole owners of all the rights and privileges granted and secured or intended to be granted and secured in and by said letters patent, as by said letters patent or a duly certified copy thereof, here in court to be produced, will fully and at large appear.

And your orators further show unto your honors that by virtue of the premises they became and now are the sole and exclusive owners of said letters patent and the inventions and improvements described therein and of all the rights and privileges granted and secured or intended to be granted and secured thereby; and that since they became owners thereof as aforesaid *and* expended large sums of money and have been to great trouble in and about said invention, and for the purpose of carrying on the business of manufacturing coal-hods according to said invention and making the same profitable to themselves and useful to the public, and that said invention has been and is of great benefit and advantage, and that they have made preparations to make large quantities of said coal-hods according to said invention, to the great advantage of the public, and that the

public have generally acknowledged and acquiesced in the aforesaid rights of your orators, and your orators believe that they will realize and receive large gains and profits therefrom if infringements by said defendant and its confederates shall be prevented.

Yet the said defendant, well knowing the premises and the rights secured to your orators aforesaid, but contriving to injure your orators and deprive them of the benefits and advantages
6 which might and otherwise would accrue unto them from said invention, after the issuing of the letters patent as aforesaid and before the commencement of this suit, did, as your orators are informed and believe, without the license or allowance and against the will of your orators and in violation of their rights and in infringement of the aforesaid letters patent, unlawfully and wrongfully and in defiance of the rights of your orators, make, construct, use, and vend to others to be used the said invention, and did make, construct, use, and vend to others to be used coal-hods made according to and employing and containing said invention, and that it still continues so to do, and that it is threatening to make the aforesaid coal-hods in large quantities and to supply the market therewith and to sell the same—

All in defiance of the rights acquired by and secured to your orators as aforesaid and to their great and irreparable loss and injury, and by which they have been and still are being deprived of great gains and profits which they might and otherwise would have obtained, but which have been received and enjoyed and are being received and enjoyed by the said defendant by and through its aforesaid unlawful acts and doings.

And your orators further show unto your honors, on information and belief, that said defendant has made and sold large quantities of said coal-hods and has a large quantity on hand which it is offering for sale, and has made and realized large profits and advantages therefrom, but to what extent and how much exactly your orators do not know, and pray a discovery thereof; and your orators
7 say that the use of the said invention by said defendant and its preparation for and avowed determination to continue the same and its other aforesaid unlawful acts in disregard and defiance of the rights of your orators have the effect to and do encourage and induce others to venture to infringe said patent in disregard of your orators' rights.

And your orators further show unto your honors that they have caused notice to be given to said defendant of said infringements and of the rights of your orators in the premises and requested it to desist and refrain therefrom; but it disregarded said notice and refused to desist from said infringements and still continues to make and sell said coal-hods.

And forasmuch as your orators can have no adequate relief except in this court, to the end, therefore, that the said defendant may, if it can, show why your orators should not have the relief hereby prayed, and may, by its proper officers, according to their best and utmost knowledge, remembrance, information, and belief, full, true, direct, and perfect answers make to the premises and to all the

several matters hereinbefore stated and charged as fully and particularly as if severally and separately interrogated as to each and every of said matters, and may be compelled to account for and pay to your orators the profits by it acquired and the damages suffered by your orators from the aforesaid unlawful acts.

And your orators pray that said defendant, its servants, agents, attorneys, and workmen, and each and every of them, may
8 be restrained and enjoined provisionally and perpetually by the order and injunction of this honorable court from directly or indirectly making, constructing, using, vending, delivering, working, or putting into practice, operation, or use or in anywise counterfeiting or imitating the said invention or any part thereof or any coal-hod made in accordance therewith or like or similar to those which it has heretofore made, and that the said defendant may be decreed to pay the costs of this suit, and that your orators may have such further relief or such other relief as to this honorable court shall seem meet and as shall be agreeable to equity.

May it please your honors to grant unto your orators the writ of injunction, as well provisional as perpetual, issuing out of and under the seal of this honorable court, commanding, enjoining, and restraining the said defendant, its servants, agents, attorneys, and workmen, and each, and every of them, as is hereinbefore in that behalf prayed.

May it please your honors to grant unto your orators the writ of subpœna, issuing out of and under the seal of this honorable court, directed to said defendant, The Iron Clad Manufacturing Company, commanding it, by a certain day and under a certain penalty, to be and appear, through its officers, in this honorable court, then and there to answer the premises and to stand to and abide such order and decree as may be made against it.

And your orators will ever pray, &c.

CHARLES HOFF.
PETER RENNER.

GEO. J. MURRAY,
9 *Solicitor for Complainants.*
ARTHUR v. BRIESEN,
Of Counsel.

STATE OF OHIO, }
Hamilton Co., } *ss:*

On this 4th day of August, 1884, before me, personally appeared Charles Hoff and Peter Renner, the above-named complainants, who, being by me first duly sworn, depose and say that they have read the foregoing bill of complaint subscribed by them and know the contents thereof, and that the same is true of their own knowledge, except as to the matters therein stated on information and belief, and as to those matters they believe it to be true, and that they verily believe the said Charles Hoff to be the first, original, and

sole inventor of the invention described and claimed in the letters patent referred to in the bill of complaint.

CHARLES HOFF.
PETER RENNER.

Sworn to and subscribed in my presence this 4th day of August, 1884.

DAVID S. OLIVER,
Notary Public, Hamilton Co., Ohio.

80c. notary fee, paid by complainants.
[SEAL.] DAVID S. OLIVER.

(Endorsed:) Circuit court of the United States for the southern district of New York. Charles Hoff and Peter Renner *vs.* Iron Clad Manufacturing Company. Bill in equity. Geo. J. Murray, compl'ts' sol'r. Arthur v. Briesen, of counsel, 229 Broadway, N. Y. U. S. circuit court. Filed Aug. 11, 1884. Timothy Griffith, clerk.

11 Circuit Court of the United States for the Southern District of New York.

CHARLES HOFF and PETER RENNER *vs.* IRON CLAD MANUFACTURING CO. } In Equity.

The clerk will please enter my appearance as solicitor for the defendant in this suit.

Dated N. Y., Sept. 1, 1884.

ERNEST C. WEBB,
22 *Cliff St., New York City.*

To Timothy Griffith, Esq.

Endorsed: U. S. circuit court, southern dist. of N. Y. In equity. Charles Hoff and Peter Renner *vs.* Iron Clad M'f'g Co. Appearance. Ernest C. Webb, def't's solicitor, 22 Cliff St., N. Y. city.

12 In the Circuit Court of the United States for the Southern District of New York.

CHARLES HOFF and PETER RENNER *vs.* THE IRON CLAD MANUFACTURING COMPANY. } In Equity.

The answer of the Iron Clad Manufacturing Company, the above-named defendant, to the bill of complaint of Charles Hoff and Peter Renner, the above-named complainants.

This defendant, now and at all times hereafter, saving and reserving unto itself all and all manner of benefit and advantage of exception that can or may be had or taken to the many errors, uncertainties, insufficiencies, and imperfections in the said bill of complaint contained, for answer thereto or unto so much thereof as it is advised is material or necessary for it to make answer unto, answering, says:

That it admits it is a corporation organized and existing and having its principal office as alleged in said bill.

13 And this defendant, further answering, says:

First. It admits, on information and belief, that letters patent of the United States numbered 279,871 were, on the 19th day of June, A. D. 1883, granted unto Charles Hoff and Peter Renner jointly, for an alleged improvement in coal-hods, alleged to have been made by Charles Hoff, but whether the said Charles Hoff made application in due form of law for said letters patent or whether he complied with all the requirements of the statutes in such cases made and provided this defendant does not know and is not informed, and therefore leaves said complainants to make such proof thereof as they may be advised.

Second. This defendant, further answering, says that it is not advised, save by the said bill of complaint, whether any interest in said letters patent was assigned before the granting thereof, or at any time, to Peter Renner, or whether said letters patent were properly granted to said Charles Hoff and Peter Renner jointly, as set forth in said bill, or otherwise, or whether said alleged assignment was duly or at all recorded in the Patent Office, and leaves the complainants to make such proof thereof as they may be advised.

Third. And this defendant, further answering, on information and belief denies that said alleged improvements had not been known or used before the alleged invention thereof by said Charles Hoff, or that said alleged improvements had not been for more than two years, at the time of his application for a patent therefor, in public use or on sale.

Fourth. And this defendant, further answering, denies that the said alleged invention is useful, or that it is an improvement and advance in this art; but, on the contrary thereof, on information and belief this defendant avers and charges the fact to be that

14 the said letters patent are null and void for want of utility, and also, for a further and separate reason, for want of invention in the said Charles Hoff.

Fifth. And this defendant, further answering, on information and belief says that for the purpose of deceiving the public the description and specification filed by the said Charles Hoff in the Patent Office as part of the alleged application for said letters patent was made to contain less than the whole truth relative to his said alleged invention or discovery, and the same is null and void by reason thereof.

Sixth. And this defendant, further answering, says that it does not know and is not informed, save and except by said bill of complaint, whether said complainants have ever applied the said alleged improvement to practical use, or whether since the grant of said letters patent, or at any time, the complainants have been in the undisturbed or any possession, use, or enjoyment of any privileges supposed to be secured by said letters patent, or whether said complainants have received any profits therefrom, as alleged in said bill of complaint, and therefore this defendant neither admits nor

denies the same, but leaves the said complainants to make such proof as to these several matters as they may be advised.

Seventh. And this defendant, further answering, denies that it has at any time and in any place infringed upon any legal or equitable right or rights of the complainants herein; and further denies that it has ever at any time and in any place made, used, or sold any coal-hods or any other articles in infringement of the said letters patent on which this suit is brought or any claim thereof.

Eighth. And this defendant, further answering, avers and
15 charges the fact to be that the said Charles Hoff was not the original and first inventor of the said alleged improvements in coal-hods described and claimed in said letters patent No. 279,871, of June 19th, 1883; but, on the contrary thereof, that the same thing in all material and essential features and the same principle and combination were, previous to the said alleged invention of Charles Hoff, fully described and set forth in the following publications and letters patent, long prior to the alleged or any invention or discovery thereof in the said Charles Hoff, to wit:

U. S. letters patent No. 103,079, granted to Timothy J. Powers May 17, 1870, for improvement in cartridge cases.

U. S. letters patent No. 124,093, granted to George Smith February 27, 1872, for improvement in coal-scuttles.

U. S. letters patent No. 156,591, granted to Anna Powers, executrix of Timothy J. Powers, deceased, November 3d, 1874, for improvement in paper boxes.

U. S. letters patent No. 191,071, granted to Edward O'Toole May 22d, 1877, for improvement in coal-hods.

U. S. letters patent No. 94210, granted to B. B. Hotchkiss August 31, 1869, for improvement in metallic cartridges.

Ninth. And this defendant, further answering, on information and belief says that the claims of said letters patent cannot be properly so construed as to cover any coal-hods or other articles made, used, or sold by this defendant; and, further answering, on information and belief says that if the claims of said letters patent or either of said claims shall be construed so broadly as to include the coal-hods manufactured by it, then the said Charles Hoff was not the first inventor of the improvements claimed in said letters patent, for the reason that long before any invention or discovery thereof by
16 said Charles Hoff the same was known to and had been invented and discovered by Henry S. Reynolds, residing in Brooklyn, Kings county, New York, and had long prior to said alleged invention or discovery by the said Charles Hoff been successfully and practically illus trated by said Henry S. Reynolds and by him exhibited and disclosed to the following-named persons, to wit: Frank E. Young, Edward Peacock, David McKenzie, and Henry W. Shepard, all residing in said Brooklyn, Kings county, New York, all of whom are possessed of knowledge of the making and operation of said invention by said Reynolds.

Tenth. And this defendant, further answering, on information and belief says that the said Charles Hoff was not the original and first inventor and discoverer of any material or substantial part of the

thing patented aforesaid; but, on the contrary thereof, that the same thing in all material and essential features and particulars and the same principal and combinations had been previous to the alleged invention of Charles Hoff known to and used by the following-named persons and at the following places, to wit: Henry S. Reynolds, Frank E. Young, Edward Peacock, David McKenzie, E. W. Bliss, X. Stoutenborough, Henry L. Brevoort, and Henry W. Shepard, all residing in Brooklyn, Kings county, New York, and having knowledge of the prior use of the same at said Brooklyn and other places.

John Sprague, residing in Orange, New Jersey, and having knowledge of the prior use of the same at New York city, New York, and other places.

And divers other persons, whose names and residences and the places where they respectively had known and used the same are at present unknown to this defendant, but which this defendant prays to be allowed to set up and insert in its answer as soon as it
17 ascertains the same; all of which use and knowledge was prior to the pretended invention of said Hoff.

Eleventh. And this defendant, further answering, says that it has had and now has the right to make, use, and sell articles to restrain the manufacture, use, and sale of which this suit is brought under the authority of and by virtue of the right vested in the manufacturer thereof so to do under U. S. letters patent No. 304,033, granted to this defendant, as assignee of Henry Reynolds, for improvement in coal-hods, on the 20th day of August, 1884.

Twelfth. And this defendant, further answering, on information and belief denies that the complainants or any one else have ever, by the practice of said alleged invention described and claimed in said letters patent, made any coal-hods or any other article to the great advantage of the public, or that the public have generally acknowledged and acquiesced in the alleged rights of the complainants.

Thirteenth. And this defendant, further answering, on information and belief says that the said Charles Hoff, after his alleged and pretended invention of said alleged improvements, abandoned the same to the public, as this defendant will show at the hearing hereof; and it avers and charges the fact to be that the said letters patent are null and void by reason of the abandonment of the alleged invention therein described to the public.

Fourteenth. And this defendant, further answering, says that it is ignorant of how much time and money the said complainants may have expended in and about the said alleged invention, and leaves them to make such proof thereof as they may be advised.

18 Fifteenth. And this defendant, further answering, denies that it has ever contrived to injure said complainants or to defraud them of any profits, benefits, or advantages whatever; and further denies that it is now threatening or has ever threatened to make, use, and to sell or to make, to use, or to sell any coal-hods or any other article in infringement of the said alleged improvement or invention described and claimed in the said letters patent here in

suit; and it denies that it has ever at any time or at any place made, used, or sold any such article.

Sixteenth. And this defendant, further answering, says, on information and belief, that, in view of the state of the art as it existed at the time of the alleged invention of said Charles Hoff, the same did not cover any new and useful art, machine, manufacture, or composition of matter or any new and useful improvement in any art, machine, manufacture, or composition of matter, and that the subject-matter embraced in said letters patent is not such as can lawfully be the subject of letters patent.

Seventeenth. And this defendant, further answering, denies each and every other allegation in the said bill of complaint contained not hereinbefore admitted, controverted, or denied; and this defendant prays the same benefits of the facts and things herein set forth as if for the reason thereof the said bill had been demurred to, where a demurrer would have been proper, and the same benefit thereof as if they had specially pleaded to said bill.

Wherefore this defendant submits to this honorable court that said complainants have no right to any further answer to said bill or any part thereof than is hereinabove contained, and no right to any injunction, account, or other relief prayed for in said bill; and
19 this defendant prays to be hence dismissed with its reasonable costs and charges in this behalf most wrongfully sustained.

And will ever pray, &c.

IRON CLAD MANUFACTURING CO.,
By HENRY W. SHEPARD, *President.*

ERNEST C. WEBB, [L. S.]
Solicitor and of Counsel for Defendant,
22 Cliff Street, New York City.

UNITED STATES OF AMERICA, }
State of New York, County of Kings, } *ss:*

Henry W. Shepard, being duly sworn, on his oath deposes and says that he is the president of the Iron Clad Manufacturing Company, the defendant named in the foregoing answer subscribed by him as such president; that he has read the same and knows the contents thereof, and that the same is true of his own knowledge, except as to the matters therein stated on information and belief, and as to those matters he verily believes it to be.

HENRY W. SHEPARD.

Subscribed and sworn to before me this 6th day of October, A. D. 1884.

JOSEPH KELLY,
[L. S.] *Notary Public, Kings Co.*

(Endorsed:) U. S. circuit court, southern dist. of New York. In equity. Charles Hoff and Peter Renner *vs.* Iron Clad Manufacturing Co. Answer. Ernest C. Webb, solicitor for defendant, 22 Cliff St., N. Y. city.

(File-mark:) U. S. circuit court. Filed Oct. 6, 1884. Timothy Griffith, clerk.

Circuit Court of the United States for the Southern District of New York.

CHARLES HOFF and PETER RENNER
vs.
IRON CLAD MANUFACTURING COMPANY. } In Equity.

The replication of Charles Hoff and Peter Renner, complainants, to the answer of The Iron Clad Manufacturing Company, defendant.

These repliants, saving and reserving unto themselves now and at all times hereafter all and all manner of benefit and advantage of exception which may be had or taken to the manifold insufficiencies of the said answer, for replication thereunto say that they will aver, maintain, and prove their said bill of complaint to be true, certain, and sufficient in law to be answered unto, and that the said answer of the said defendant is uncertain, untrue, and insufficient to be replied unto by these repliants.

Without this, that any other matter or thing whatsoever in the said answer contained material or effectual in law to be replied unto, and not herein and hereby well and sufficiently replied unto, confessed or avoided, traversed or denied, is true.

All which matters and things these repliants are and will be ready to aver, maintain, and prove as this honorable court
21 shall direct, and humbly pray as in and by their said bill they have already prayed.

GEO. J. MURRAY,
Solicitor for Complainant,
By BRIESEN & STEELE.

(Endorsed:) United States circuit court, so. district of N. Y. In equity. Charles Hoff and Peter Renner *vs.* Iron Clad Manufacturing Company. Replication. A. v. Briesen, of counsel for complainants, No. 229 Broadway, New York, N. Y. U. S. circuit court. Filed Nov. 3, 1884. Timothy Griffith, clerk.

22 Circuit Court of the United States for the Southern District of New York.

CHARLES HOFF and PETER RENNER, Complainants,
vs.
IRON CLAD MANUFACTURING COMPANY, Defendants. } In Equity.

Depositions of witnesses taken before me, David S. Oliver, a notary public in and for the county of Hamilton and State of Ohio, at the time and place specified in the notice hereto attached and in conformity thereto, on behalf of the complainants in the above-named cause.

Geo. J. Murray was present on behalf of the complainants and Ernest C. Webb on behalf of the defendants.

FRANKLIN H. LAWSON, being by me first duly sworn, deposes and says as follows:

Q. 1. State your name, age, residence, and occupation.

A. Franklin H. Lawson; age, 50 years; residence, Cincinnati, Ohio; am a merchant.

Q. 2. Are you acquainted with Charles Hoff, one of the complainants in this suit? And, if you are, state how long you have known him.

A. I am acquainted with him. I do not know exactly how long I have known him; upwards of a year and a half or two years; have known him on my books longer than personally.

Q. 3. Are you acquainted with any of the officers or agents of the Iron Clad M'f'g Co. of New York City? And, if you are, state the name of the party or parties.

23 A. I am acquainted with Mr. Hinman, who I have always understood is an officer and agent also of said company. His full name is John J. Hinman. He is a salesman and represents the company.

Complainants here offer in evidence certified copy of letters patent granted to Charles Hoff and Peter Renner June 19, 1883, numbered 279,871, for improvement in coal-hods. Notary will mark the same "Complainants' Exhibit No. 1;" also coal-hod, and notary will mark the same "Complainants' Exhibit No. 2."

Q. 4. Please examine the coal-hod now shown you, which is marked "Complainants' Exhibit No. 2, David S. Oliver, notary public," and state, if you know, by whom the said coal-hod was manufactured or sold and when it was sold, if you know.

A. A hod like this was either manufactured or sold by the Iron Clad M'f'g Co. We received first shipment, to my best recollection, taken from my books, in August, 1884; made a memorandum of first invoice, which was shipped Aug. 13, 1884. There were other invoices subsequent.

Q. 5. State if buckets received at that date had bottom formed in radial crump, with piece in bottom, the same as shown in bucket marked "Complainants' Exhibit No. 2."

Objected to as incompetent.

A. Well, I will state before answering that question that what I know is from statements made by employees of mine, as I was absent at that time from the city. Our employees said that nearly, if not all, the coal-hods received at that date from the Iron Clad M'f'g Co. were similar in every respect to sample now shown me, excepting they were of different sizes and quality of iron.

All after the word city objected to as hearsay.

Q. Has the house of Lawson & Co. received or purchased any coal-hods having the bottom formed as in the hod marked "Complainants' Exhibit No. 2" from any other parties than the Iron Clad M'f'g Co. of New York City?

A. To the best of my knowledge, we have not.

Q. 7. Can you state how many coal-hods similar to said exhibit, since the date of first invoice, Aug. 13, 1884, you have received?

A. I cannot say without further examination of my books, but I should say over 500 dozen.

Q. 8. Please examine the coal-hod now shown you, and state whether you have ever seen the same before, or one having the bottom made similar to it.

A. I cannot say whether I have seen this identical hod before, but have seen hods with bottoms made similar to it.

Q. 9. State where and under what circumstance you first saw such coal-hod.

A. My recollection is that Mr. Hoff, who is here present, came to my place of business, having with him a sample hod something similar to the one before me, and asked my opinion as to the merits of the same, and also whether I would like to take hold and become interested in it in some way. I was very favorably impressed with the coal-hod and made some recommendation and suggestion with regard to it. I think that was either in the fall or winter of 1883, but made no memorandum of the date, not thinking I would ever be called as a witness in regard to the matter.

Q. 10. State whether or not you had at any time any conversation with Mr. Henman or any officer of the Iron Clad Co. in regard to the Hoff hod, similar to the exhibit before you?

A. I had, with Mr. Hinman.

The coal-hod about which witness is testifying is here offered in evidence. Notary will mark the same "Complainants' Exhibit No. 3."

Offering of exhibit objected to as immaterial.

Q. 11. State as nearly as you can the substance of that conversation, when it took place, and who, if any, besides yourself and Mr. Hinman, were present.

A. I would state that Mr. Hinman, of the Iron Clad Co., came to our place of business at a date subsequent to the conversation I had with Mr. Hoff in regard to the bucket while in my office. I
25 informed Mr. Hinman about this coal-hod, and told him that I considered it the best hod in the market, and it would be the most successful selling hod, provided it could be manufactured and put on the market at reasonable prices. This is the substance of our conversation. I suggested to him to have Mr. Hoff have an interview with him, which Mr. Hinman agreed to. I sent a message to Mr. Hoff, I think by telephone, and he came to our place of business and brought with him one or more samples of hods. They talked the matter over, but I do not remember their conversation, except that, at Mr. Hinman's request, a sample of the hod was sent to the address of the Iron Clad Co., in New York city. Considerable conversation took place at the time, as I was anxious to have the Iron Clad Co. have control of this hod, provided it were practicable. The hod was shipped to the Iron Clad Co. with our tag on it, I think.

Q. 12. Do you remember, or not, selling a hod like Exhibit No. 1 to Charles Hoff, one of the complainants, now present?

Objected to as immaterial and indefinite as to time.

A. I do not remember anything about it. I do not think I did, because I do not believe I was here at the time.

Q. 13. Have the coal-hods like Exhibit No. 2, sold by Iron Clad Co., any name by which they are known to the trade?

A. I think not, any more than Iron Clad hods.

Q. 14. Since your house has been purchasing hods like Exhibit No. 2 from Iron Clad Co., how many of old-style hods, like they sold before the introduction of the new hod, have you received from said Co.?

A. Nearly if not all hods we have received since the introduction of the new hod have been like Exhibit No. 2.

It is hereby stipulated and agreed between the parties that hereafter in taking the testimony Exhibit No. 2 shall be called the "Iron Clad Hod," and Exhibit No. 3 "The Hoff Hod," and Exhibit No. 1 as Complainants' Patent."

Cross-examination:

X 15. In answer to question 4 you say that the first shipment of these hods was made in August, 1884, and that the first
26 invoice was shipped August 13. Do you mean that the first lot of these goods were shipped to you from New York by the Iron Clad Co. on Aug. 13?

A. As I said before, I took the date of invoice from our books. There might possibly have been an invoice previously, which I cannot state without examining our books. This was the first important shipment. We place our orders early in the season, and that was one of these shipments.

X 16. As I understand you, you cannot state positively at the present time the date when the Iron Clad Co. first sold and shipped to your firm any hods like the Iron Clad hod?

A. I can state positively that the invoice of Aug. 13, 1884, contained hods similar to the Iron Clad hod, but as to previous dates cannot state further without examination of our books.

FRANKLIN H. LAWSON.

FENTON LAWSON, being by me first duly sworn, deposes and says as follows:

Q. 1. State your name, age, residence, and occupation.

A. Fenton Lawson; 27 years old; live in Cincinnati; am with the firm of F. H. Lawson & Co., merchants.

Q. 2. Examine the Iron Clad coal-hod now shown you, your attention being particularly directed to the formation of the bottom, and state if you are familiar with coal-hods so constructed; and, if so, when and where you have seen them and by whom they are manufactured and sold.

A. I know the hod. The first one I ever saw was brought out

here by Mr. Hinman, of the Iron Clad M'f'g Co. I saw it in our office. It was some time in June, 1884. We have bought them from the Iron Clad M'f'g Co.

Q. 3. State when you bought the first ones from the Iron Clad Co.

A. We gave an order for a lot for the season some time in June, at the time I first saw them or the day following.

Q. 4. Can you state when you received the first shipment from the Iron Clad Co. of the hods like the exhibit, "The Iron Clad Hod?"

27 A. In answer to that I should like to explain that I was afraid it would be so late before they would get here that I had a half dozen sent for our salesmen as samples, and they were shipped from New York on July 2, 1884, and were received here about the 4th or 5th. The next bill of goods was sent by freight and the bill was dated at New York, Aug. 13, 1884.

Q. 5. State if these two invoices were shipped by the Iron Clad Co. on the order given by your house to Mr. Hinman when he exhibited to you the bucket in June.

A. The second invoice was on our order given in June, 1884.

Q. 6. Do you remember selling one of these hods, similar to the exhibit, to Charles Hoff? Examine bill now shown you and state the kind of a hod sold for which that bill was made.

A. We sold him a hod—one of the half dozen. This bill was for one of these hods. It was on July 10, 1884. Having this bill before me, I know it is in our bill clerk's writing.

Bill referred to is herewith offered in evidence. Notary will mark same "Complainants' Exhibit F. H. Lawson's Bill."

Cross-examination:

X 7. As I understand your testimony, it is to the effect that you sold Mr. Hoff a coal-hod in July, 1884, which was one of six your firm had received from the Iron Clad M'f'g Co., and that the hod marked "Iron Clad hod" is similar in appearance to the one you sold Mr. Hoff. Am I correct?

A. Yes, sir.

Redirect:

Q. 8. Has your firm had any hods similar to the Iron Clad hod before except those your house obtained from the Iron Clad M'f'g Co. of New York City?

A. We have not.

FENTON LAWSON.

FERDINAND DIECKMANN, being by me first duly sworn, deposes and says as follows:

Q. 1. State your name, age, residence, and occupation.

A. Ferdinand Dieckmann; am 51 years old; residence, 82 Har-

rison Ave., Cincinnati, O.; I manufacture tin elbows and pipe
28 —. 2. How long have you been engaged in your present occupation and what did you do previous to that? State generally how long you have been engaged in mechanical pursuits and what branch of mechanics.

A. Have been engaged in my present occupation about 12 or 13 years. Previous to that I made images; have been engaged in mechanical pursuits 32 years. I worked about 6 years in a machine shop. Then I made images for 3 or 4 years; then I was a house and sign painter; then carpenter and builder; then to making patents. Ever since I have got up patents and worked with machines besides.

Q. 3. Do you mean by making patents that you have made inventions for which you have received patents; and, if so, in what branch of the arts have you made inventions for which you have obtained patents?

A. The first invention I made was a wooden bridge; second was a stovepipe elbow made of one piece. Then I made another stovepipe elbow; the- I got a patent on gas engines; then I got up a vapor coal-oil stove, for which I got two or three patents.

Q. 4. From your familiarity with mechanics and letters patent, would you be able from an examination of letters patent relating to sheet-metal vessels to understand said said letters patent and the articles shown and described therein?

A. Yes, sir.

Q. 5. Examine the certified copy of letters patent No. 279,871, dated June 19, 1883, now shown you, and marked "Complainants' Exhibit Patent," and state if you understand the invention shown, described, and claimed therein.

A. Yes, sir; I do. It is a coal-hod made of one piece formed into a cone shape, and the point of this cone shape crimped down into a flat bottom. It has claims, for no matter in what shape or fashion the crimping is done, if they only succeed in getting the point of the cone shape into the flat bottom. This is as near as I can explain it.

Q. 6. Please examine the Iron Clad hod now shown you and state wherein it compares with or differs from the invention shown and described and particularly referred to in the claims of said Exhibit Complainants' Patent.

29 A. This has a little different fashion of the coal-hod Mr. Hoff has described and adopted to manufacture, but it is the same thing, crimping in the bottom from a cone shape. The piece in the center is merely a handy closure. The same thing, I think, could be done with a rivet. It wouldn't need that piece in there at all.

Q. 7. Would or would not a mechanic skilled in the art to which this invention relates be enabled to make a hod like the Iron Clad hod from reading the complainants' specification and examining drawings of his patent without invention?

Objected to—(1) as incompetent, (2) as calling for an opinion

from a witness who has not been shown to be competent to give such an opinion, (3) as calling for a mere conclusion on the part of this witness.

A. No, sir. He would not make an invention after having read the complainants' specifications. I think it is as plain a patent as could be to show that Mr. Hoff is entitled to any coal-hod made from a cone-shaped piece of metal.

Q. 8. Can you state from an examination, as a mechanic, of the Iron Clad hod how the bottom of the said hod was formed?

A. It was formed of crimps bent in toward the centre. On the outer side of the bottom the crimps start and then increase so as to take up the necessary surplus metal. The centre is filled out with a flat piece in order to give a finish.

Q. 9. Are you acquainted with Charles Hoff, one of the parties to this suit; and, if so, how long have you known him?

A. Yes, sir; have known him about 20 years.

Q. 10. Are you familiar with his inventions in coal-hods represented by the Hoff hod now shown you and the complainants' patent? How long have you been familiar with said inventions?

A. Yes, sir; cannot tell the date, but it is about two years and a half. I know from the time when he experimented. He made a good deal of it in my shop.

Q. 11. Please describe the experiments you are familiar with and which you say were made in your shop.

A. I saw him crimp in a coal-hod then similar to this Iron Clad hod here, but the patch was larger in the centre The patch in the centre was about 4 or 5 inches. Then he had another one with a large rivet in it. It was botched up because made by hand and without tools. Then the last experiment was the present patented shape. He did not finish it in my shop, but showed it to me when it was finished.

Q. 12. What was it you saw him crimp in?

A. It was a cone-shaped piece of metal.

Q. 13. Was the bottom in each of these hods closed in? I refer to the one with the patch, and also the one with the rivet.

A. Yes, sir.

Q. 14. What became of these experimental hods?

A. I suppose it went away with the waste material.

Q. 15. State, if you know, why Mr. Hoff changed his plan of construction shown in the Iron Clad hod to that shown in the Hoff hod.

A. He requires no riveting or pieces to make an entire closure, and, besides, it has three layers of iron uniformly divided around in the bottom. Such is not the case in the Iron Clad hod. It has a single layer, which is easily broken by coal. That is all I can say about that.

Adjourned until 10 o'clock, Friday, Jan. 16, 1885.

Met pursuant to adjournment, at 10 o'clock Friday morning, Jan. 16, 1885.

Q. 16. Do you know anything in relation to the Hoff hod being sent on to the Iron Clad M'f'g Co. or returned by them to Charles Hoff?

A. I got a telephone message from Lawson to tell Charles Hoff he should come down to Lawson's, as there was an agent from New York there, and he should bring down his coal-hod. I went to see Hoff. He was in the neighborhood making plans for his machine when I found him, and about half an hour afterward he took his hod along and went down to Lawson's, and from there he took it to the express office, as far as I know, as I was not present.

As I understood it was sent on, and I inquired what had become of his hod, and what the people said of his hod. That was a long time after that. Hoff said that he was going to write
31 them that they should return the bucket, if they did not want to make a bargain. A short time after that Hoff told me that they had written to him that they could not use a bucket of that description, and that they had sent the bucket back by express. When Hoff brought the bucket from the express office I picked up the bucket for curiosity to look at it, and noticed in the bottom pencil marks. Then I said to Hoff: "Look here, Charley, they have been making plans on your bucket to lay the crimps in another way. They want to lay them, I suppose, or calculate to lay them the same as you had them some time ago." He said: "I suppose they did; it looks just like it." That is all I know about that.

That portion of the answer which relates to what was done with the bucket after Hoff left the witness is objected to as hearsay, and that relating to the pencil marks, as a mere conclusion on the part of the witnesses.

Q. 17. Please examine again the Hoff coal-hod, and state, if you know, whether or not this is the identical hod which Mr. Hoff brought back with him from the express office, and the one you saw him take down with him to Mr. Lawson's in response to the telephone message you delivered to him.

A. Yes, sir; that is the same hod that was sent down to him and was returned by the express office.

Q. 18. Will you carefully examine the bottom of said Hoff hod and state if you recognize any of the pencil marks on said hod which you have heretofore spoken about?

Objected to as immaterial.

A. There is a small portion of these pencil marks left.

Cross-examination *de bene esse:*

X 19. How do you identify this hod as the same hod Mr. Hoff took to Mr. Lawson to send to New York?

A. By the bottom and by the irregularity of the crimps in the bottom.

X 20. Then you identify it, do you not, by the general appearance of the bottom and not by any special mark?

32 A. The irregularity of the crimps forms a special mark.

X 21. And you identify it by the general appearance of the bottom?

A. Yes, sir.

X 22. Have you had any practical experience in the manufacture of coal-hods?

A. As far as crimping iron is concerned, I have had.

X 23. Crimping iron for what purpose?

A. Sheet-metal elbows of one piece.

X 24. Question 22 repeated.

A. No, sir.

X 25. Have you ever witnessed the manufacture of a coal-hod identical in construction with Exhibit "Iron Clad Hod" so as to understand the several steps followed in such manufacture?

A. I have seen Mr. Hoff about it. I was never in a factory of that kind.

X 26. From the Exhibit "Iron Clad Hod" itself, do you understand the method followed in making such a hod?

A. Yes, sir; I think I could follow it right up, and even make the machinery necessary for that.

X 27. Describe the method, step by step.

A. Well, they first cut out their blank iron and turn it up into a cone shape. They make the proper divisions where they want to make their crimps, on the end or wherever they want to start. This crimping is done by at least two processes. One is done by what we call the raised or sunk process. It is dented in. That will draw the iron naturally half way toward the centre. Then by taking a die and pressing down from the top, it naturally must have a die below or block to lie on, the upper die will simply press the iron clear down, and the crimps will naturally find their own proper place to lie. The piece put in the centre is first formed up something like a shoe box, a little slant, then stuck through and the outer edges bent down.

X 28. Please look at Complainants' Exhibit Hoff Patent and state if any of the figures of the drawing of that patent show a "cone shape."

A. Fig. 3 does.

X 29. Is what is shown by full lines in Fig. 3 what you understand by a "cone shape?"

33 A. I do.

X 30. The first claim of the Hoff patent states "the method of forming the body of a coal-hod or other similar vessel, which consists substantially as before set forth." You understand, do you not, that these words "substantially as before set forth" relate to the specifications which precede the claims?

A. Yes, sir.

X 31. Now, what are the essential characteristics of the method set forth in the specification?

A. The principal part of it is that he forms a cone shape out of

his blank before he begins crimping. That is about as near as I can get to it.

X 32. The essential feature of the Hoff invention as described and claimed in Complainants' Exhibit Hoff Patent is to make the body and bottom of the hod out of a single piece of metal by forming up a blank to a cone shape, and then folding the cone end in crimps to form the bottom, is it not?

A. Yes, sir.

X 33. Then suppose I take a piece of metal and shape it to form a coal-hod body, and then fold in the metal at the smaller end in crimps, partially forming the bottom in this manner, but still leaving an opening in said bottom, would such a structure, in your opinion, be the invention specified and claimed in the Hoff patent?

A. Yes, sir; the little piece in the centre is only to surround the patent. It is not a necessary part in the middle. The crimps first made is the largest part of his patent, and they only cut the point out to make it look a little different.

That portion after the answer after the words "yes, sir," is objected to as irresponsive and volunteered.

X 34. I am not asking you about the Exhibit Iron Clad Hod, but am asking you to suppose a hod constructed as in the question, which says nothing about any piece in the centre. With this explanation, the question is repeated.

A. Yes, sir.

X 35. The coal-hod so constructed would have a hole in its bottom, would it not?

A. Yes, sir.

34 X 36. It would not be a complete article of manufacture then, would it?

A. No; it would not.

X 37. Would it then be a coal-hod having its body and bottom made out of a single piece of metal made by forming up a blank to a cone shape and then folding the cone end in crimps to form the bottom?

A. It would be an unfinished one. If Mr. Hoff wanted to put a piece in the centre of his he could do so.

X 38. Are the claims of the Hoff patent for a complete or incomplete article?

A. Well, they are made to include a complete article; but an incomplete article is not suitable for sale.

X 39. Is the Exhibit Iron Clad Hod a coal-hod formed of a single piece?

A. Yes, sir.

X 40. And in giving your testimony have you done so with that understanding?

A. I meant to say that it is formed of one piece. If they had bent the iron over or had made the iron a little longer, which in mechanical doings might have been done as well as not, they could have avoided any piece in it, and I do not see where the improvement comes in for which they had a patent allowed. If Mr. Hoff

had made the Iron Clad hod and the Iron Clad Co. had made Hoff's hod I would see an improvement in it.

X 41. But as it is constructed it is not formed of a single piece, is it?

A. The improvement lies in the single piece; otherwise they might have left it as it was in former days and nailed the whole bottom on.

X 42. What improvement do you mean?

A. I mean if a person gets a patent on an article he proves an improvement above anything made in that line before, and that I cannot find in the Iron Clad hod.

X 43. Please hear the notary read your answer to the 41st interrogatory and state if the improvement you referred to is that covered by the Hoff patent.

A. The improvement in coal-hods is in making them out of one piece.

35 X 44. Do you know who was the first person to make and patent a coal hod having its bottom and body formed from a single piece of metal?

A. I never saw one before Hoff's, and never heard of one.

X 45. Do you find in the Hoff patent any limitation as to the character of the material out of which the coal-hod must be made?

A. It calls for sheet metal. That means any sort of metal—copper, brass, iron.

X 46. Any material, then, might be used which could be formed up and made into a hod by the method described?

A. I guess so.

X 47. Have you ever seen kitchen and household utensils—such as pails, basins, and the like—made of paper?

A. Yes, sir.

X 48. Could paper be used in these coal-hods?

A. Well, it calls here for sheet metal. That is what I meant when I said I guess so. I did not think you would get into the aper line.

X 49. Then a coal-hod made of paper or paper composition would not be covered by the Hoff patent?

A. No, sir; I do not think it calls for that.

X 50. How do you know the Iron Clad Co. obtained a patent on their hod?

A. I think Mr. Hoff told me so.

X 51. Have you ever seen a copy of the patent?

A. No, sir.

X 52. If the piece of metal or cap in the bottom of the Iron Clad hod be removed there will be an opening to the bottom, will there not?

A. Undoubtedly.

X 53. Suppose, then, that the opening was twice as large and was closed by a cap or piece of metal twice the size of the one in the Iron Clad hod, would the hod then embody the invention?

A. Yes, sir; in my judgment, it would. As long as they draw in the end by means of seams they are infringing on Mr. Hoff's patent.

X 54. And in that case would the Iron Clad hod, before the bottom piece or cap is put in, be "a coal-hod made of one piece
36 formed into a cone shape and the point of this cone shape crimped down into a flat bottom"?

A. It would be an unfinished Hoff hod.

X 55. Please hear the notary read your answer to the 6th interrogatory and state how the bottom of the Iron Clad hod could be closed by a rivet.

A. Well, since I look at it right, it could be closed without a rivet. If you make uniform ribs, you can shove one rib into the other and let them extend over each other about an inch or half an inch, and when galvanized it would require no rivets at all.

X 56. Do you mean ribs running in the same direction as these in the Iron Clad hod?

A. Yes, sir.

X 57. In such case the ribs would extend over each other at the centre of the bottom so as to close the bottom?

A. Yes, sir.

X 58. Can you state the year when Mr. Hoff first began his experiments in your shop?

A. I have not paid particular attention to the time when he did do that. It was about two years and a half ago, I think. It might be more or it might be less. I could not tell you.

X 59. Can you state the year when he made the first hod in all respects like the Exhibit "Hoff Hod?"

A. Actually I do not know. This I can say, he made it shortly before he made the application for his patent. I did not time all these things.

X 60. Did you ever patent your sheet-metal elbows made of one piece?

A. Yes, sir.

X 61. When?

A. In 1871, Nov. 13th, I think.

X 62. Did you help Mr. Hoff in his experiments?

A. No, sir; he is a good tinner himself. He does not require any help.

X 63. How much of this experimenting did he do in your shop?

A. Of this last model he made only the cone shape. Whatever he did to others, he did either in my shop or in Mr. Noll's shop, which is on the same floor.

FERDINAND DIECKMANN.

37 JOHN H. NOLL, being by me first duly sworn, deposes and says as follows:

Q. 1. State your name, age, residence, and occupation.

A. John H. Noll; age, 51; 82 Harrison avenue, Cincinnati, O.; am a tinner.

Q. 2. Are you acquainted with Mr. Hoff, one of the complainants in this suit? And, if you are, state how long you have known him.

A. I am; about 15 or 16 years.

Q. 3. You will please examine the Exhibit Iron Clad Hod and state if you have ever seen that hod or one similar to it before.

A. I have seen that one or one like it last year, in 1884.

Q. 4. Please state where you saw such hod, and the time you saw it, as near as you can recollect.

A. I saw it over at Mr. Lawson's store, in the fore part of July, 1884. I mean F. H. Lawson & Co.'s store.

Q. 5. Are you familiar with the invention in coal hods for which letters patent Exhibit the Hoff Patent, now shown to you and granted to Charles Hoff and Peter Renner?

A. Yes, sir; I am somewhat familiar with it.

Q. 6. After you saw a hod or hods similar to the Iron Clad hod, in the early part of July, 1884, at F. H. Lawson's store, when, if ever, did you next see a hod similar to the Exhibit Iron Clad Hod?

A. The next time I saw one of them was in my store.

Q. 7. You will please state how the said hod came to your store, and when it was you saw *him* there, and you may also state who brought it there, if you know.

A. After I had seen the hod at F. H. Lawson's I told Mr. Hoff that I had seen a bucket at F. H. Lawson's, made something after his style of a cone-shaped bucket. He then went and purchased one, and brought it up to the shop. This was a few days after I saw it at F. H. Lawson's, in the fore part of July.

Q. 8. When you first saw the bucket at Lawson's was there one or more than one there at that time?

A. I cannot state just how many there were there, but there were only a few.

Cross-examination waived.

JOHN H. NOLL.

38 CHARLES HOFF, being by me first duly sworn, deposes and says as follows:

Q. 1. State your name, age, residence, and occupation.

A. Charles Hoff; 32 years; Cincinnati, O.; am a tinner.

Q. 2. Are you the same Charles Hoff, one of the complainants to this suit?

A. Yes, sir.

Q. 3. Please examine the Exhibit Iron Clad Hod and state, if you know, by when it was made, by whom sold, and state all you know about it.

A. The hod was sold by F. H. Lawson & Co. to me. I asked him where this hod was got from. He then told me that it was a new hod that the Iron Clad M'f'g Co. are now putting out in the market. I then asked Mr. Lawson whether he would not sell me one of them. I told him it was an infringement on my hod. I bought the hod for the purpose of showing my attorney that there was a hod manufactured by the Iron Clad M'f'g Co. which infringes upon my late patent.

Q. 4. Is this hod, "Exhibit Iron Clad Hod," the identical hod

purchased from F. H. Lawson & Co., or is it one similar to the one you say you purchased from the said firm of F. H. Lawson & Co.?

A. This is the very hod I purchased from F. H. Lawson & Co.

Q. 5. When did you purchase said hod, and when and how did you ascertain that F. H. Lawson & Co. were selling and had for sale hods like this or hods having the same invention as shown in your patent here in suit?

A. I purchased it July 10, 1884. Mr. Noll informed me about that hod.

Q. 6. You will please examine Complainants' Exhibit F. H. Lawson's Bill and state, if you know, when that bill was made, and for what.

A. That bill was made for the purchase of the Iron Clad hod here. It was made the 10th day of July, 1884.

Q. 7. Are you or not able, from an examination of that bill, to say whether or not the Exhibit Iron Clad Hod was purchased by you from F. H. Lawson & Co. on July 10, 1884?

A. I am able to say that I bought that hod on July 10, 1884, from F. H. Lawson & Co.

39 Cross-examination:

X 8. Has this Exhibit Iron Clad Hod been in your possession ever since you purchased it from F. H. Lawson & Co.?

A. Yes, sir.

CHARLES HOFF.

It is stipulated and agreed by and between the solicitors of the respective parties that all exhibits introduced during the taking of testimony shall remain in the possession of the party offering the same until the hearing herein, and that such exhibits shall always be accessible to either party, and shall be sent to the place or places of examination when called for by letter or otherwise. It is also stipulated and agreed that the defendant shall have forty-four days' time from this date to take its proofs herein and that the complainants shall have thirty days fron the date the defendant closes to take their proofs in rebuttal.

GEO. J. MURRAY,
Solicitor for Complainants.

ERNEST C. WEBB,
Solicitor for Defendants.

Dated Jan'y 16, 1885.

40 Circuit Court of the United States for the Southern District of New York.

CHARLES HOFF and PETER RENNER
vs.
THE IRON CLAD MANUFACTURING CO. } In Equity.

It is hereby stipulated and agreed by and between the solicitors for the respective parties in the above-entitled cause that the proofs for final hearing, taken and introduced in behalf of the complainants

herein, may be taken before D. S. Oliver, notary public, of Cincinnati, Ohio, as special examiner, and on the part of the defendant before Arthur C. Webb, notary public, of New York city, as special examiner, to take the testimony adduced on the part of the defendant, at New York city and Brooklyn, New York, and Newark, New Jersey; and the proofs so taken on each side may be filed in the clerk's office of this court and used with the same force and effect as though taken before a regular standing examiner of this court.

Dated Feb. 14, 1885.

GEO. J. MURRAY,
Solicitor for Complainants.
ERNEST WEBB,
Solicitor for Defendants.

41 ***COMPLAINANTS' EXHIBIT OF F. H. LAWSON BILL.***

DAVID S. OLIVER, Notary Public.

CINCINNATI, JULY 10, 1885.

HOFF & RENNER,

BOUGHT OF F. H. LAWSON & CO.

IMPORTERS AND DEALERS IN COPPER, TIN PLATE, SHEET IRON, TINNERS' TOOLS,

MACHINES, PRESSED AND JAPANNED TINWARE, ETC.

TERMS: ——— Nos. 188 & 190 MAIN STREET.

$\frac{1}{12}$ DOZ., 17, GAL. HODS,	- - .	4.68 -	$0.39

42 *Stipulation.*

Circuit Court of the United States for the Southern District of New York.

CHARLES HOFF and PETER RENNER
vs.
THE IRON CLAD MANUFACTURING COMPANY. } In Equity.

It is hereby stipulated by and between the solicitors for the respective parties in the above-entitled cause that the proofs for final hearing, taken and introduced in behalf of the complainants herein, may be taken before D. S. Oliver, notary public, of Cincinnati, Ohio, as special examiner, and on the part of the defendant before Arthur C. Webb, notary public, of New York city, as special examiner, to take the testimony adduced on the part of the defendant, at New York city and Brooklyn, New York, and Newark, New Jersey; and the proofs so taken on each side may be filed in the clerk's office of

this court and used with the same force and effect as though taken before a regular standing examiner of this court.

Dated Feb'y 14, 1885.

GEO. J. MURRAY,
Solicitor for Compl'ts.
ERNEST C. WEBB,
Solicitor for Def't.

43 *Notice.*

U. S. Circuit Court, Southern District of New York. In Equity.

CHARLES HOFF and PETER RENNER
vs.
IRON CLAD MANUFACTURING COMPANY.

Please take notice that the defendant in the above cause desires the evidence to be adduced therein to be taken orally, under the 67th rule in equity of the U. S. Supreme Court, as amended, and that I shall, on behalf of the said defendant and under the said rule, proceed, before a competent officer, on Tuesday, February 24th, 1885, at 11 o'clock in the forenoon, at my office, No. 22 Cliff street, New York city, New York, to take testimony orally, to be used on the final hearing of the said cause, at which time and place you can attend and cross-examine if you so desire.

The examination will be adjourned from day to day until concluded.

Dated N. Y., February 14th, 1885.

ERNEST C. WEBB,
Solicitor for Defendant.

To Geo. J. Murray, Esq., solicitor for complainants.

Service of a copy of this notice admitted this — day of February, 1885.

GEO. J. MURRAY,
Complainants' Solicitor.

44 U. S. Circuit Court for the Southern District of New York.

CHARLES HOFF and PETER RENNER
vs.
THE IRON CLAD MANUFACTURING CO. } In Equity.

Testimony taken on the part of the defendant for final hearing, under and pursuant to the 67th rule of the Supreme Court of the United States, as amended, before Arthur C. Webb, special examiner (by consent).

NEW YORK, *February 24th*, 1885—11 o'clock a. m.

Present: George J. Murray, of counsel for complainants, and Ernest C. Webb, Esq., of counsel for defendant.

HENRY S. REYNOLDS, a witness called on the part of the defendant, being duly sworn, deposes and says:

Q. 1. What is your name, age, residence, and occupation?

A. My name is Henry S. Reynolds; I am 42 years of age; I reside 666 Lorimer street, Brooklyn, E. D., and am by occupation a machinist, in the employ of the Iron Clad Manufacturing Company.

Q. 2. Please look at letters patent to Charles Hoff, June 19th, 1884, marked Complainants' Exhibit Patent, and state if you have ever examined a copy of that patent.

45 A. I have.

Q. 3. Please look at a certified copy of U. S. letters patent No. 304,033, granted to the Iron Clad Manufacturing Company, August 26, 1884, for improvement in coal-hods, as assignee of Henry S. Reynolds, and state if you are the Henry S. Reynolds mentioned in that patent.

A. I am.

Q. 4. Now please state when you made the invention covered by that patent, and relate as fully as you can all the circumstances connected therewith, and also state what, if anything, suggested to you the idea of a coal-hod having its bottom partially formed of radial ribs crimped or folded in as described in said patent.

A. In 1879. I conceived the idea from a cylinder or drum that is used for shipping zinc in. I made models in December, 1879, to form some idea of how I would construct the hod, but after I had made these models I was so busy until about June, 1880; then Mr. Shepard, the president of the Iron Clad Manufacturing Company, transferred me to another company, in which he was connected with, to superintend it; that was the reason that I had stopped on the hod until January, 1883; and during all this time until the above time, 1882, stated, my time was so occupied there with machines and the general supervision of the busines that I could not find time to finish my invention.

Q. 5. Can you produce any of the models you made in December, 1879?

A. I can.

Q. 6. Please do so.

A. Here they are—five in all.

Witness hands examiner the models referred to.

Q. 7. Are these models you have produced all the models illustrating your invention that you made in December, 1879?

46 A. no, sir; not all of them. I have made some since, but these five pieces is all I made in December, 1879.

Models produced by the witness offered in evidence and marked Defendant's Exhibits Reynolds Models 1 to 5, inclusive, A. C. W., special examiner, Feb'y 24, 1885.

Q. 8. When you made these models just offered in evidence what was the idea you had in your mind that you were trying to work out at that time?

A. A coal-hod in one or two pieces—that is, to form the body and the bottom by throwing in the lower edge of a hod by crimping or folding the surplus stock to form the bottom.

Q. 9. Can you produce one of the cylinders or drums referred to in the 4th answer?

A. I can and do so.

Witness produces one of the cylinders called for.

Q. 10. Please state when first you saw a cylinder of the same construction as the one produced.

A. I should say ten years ago, and possibly longer.

The cylinder produced is offered in evidence and marked Defendant's Exhibit Zinc Cylinder, A. C. W., special examiner, Feb'y 24, 1885.

Q. 11. State, if you can, whether these zinc cylinders have been used extensively or not.

A. They are used quite extensively. Most all of the sheet zinc is shipped in such cans.

Q. 12. Prior to December, 1879, had you seen cylinders of this construction frequently?

A. I had.

Q. 13. Where had you seen such cylinders?

47 A. At such places as Phelps, Dodge & Company, Thompson's, in Cliff street, and several other places in Water street.

Q. 14. After you conceived the idea of a coal-hod having its bottom formed by crimping or folding in the lower edge of the body and made the models you have produced to illustrate the same, did you talk to any one about your invention and show these models to any one; and, if so, to whom?

A. Yes, sir; I did; Edward Peacock, Daniel McKenzie, and Frank E. Young and Mr. Shepard, the president of the Iron Clad Company.

Q. 15. In answer to the fourth question you say in substance that you were so busily engaged with other matters until 1883 that you could not find time to finish your invention. Please explain what you mean.

A. Well, I was busily engaged in manufacturing metallic counters for boots and shoes, which I considered at that time was of more importance than the coal-hod. I stated January, 1883; I meant December, 1883, instead of January.

Q. 16. From the time you made these models until December, 1883, you did not do anything further in respect to your invention, did you?

A. No, sir.

Q. 17. What did you do about your invention in December, 1883?

A. Started to make a coal-hod full size, same as models.

Q. 18. And did you make such a hod?

A. I did.

Q. 19. In what respect was your invention not finished in December, 1879, when you made these models?

A. The only difference was that I divided the bottom off in six parts instead of four, as in 1879, and the cylinder being in two pieces in 1879 instead of one, as now.

Q. 20. By parts do you mean ribs or folds?

A. I mean the ribs dividing it off, making six ribs or folds instead of four.

48 Q. 21. Did you make a full-sized coal-hod in December, 1883, of the same construction as the models you have produced, excepting the differences you have pointed out?

A. Yes, sir.

Q. 22. Can you produce the full-sized hod you made in December, 1883?

A. I can; they are at the factory in Brooklyn, and I will send over for it.

Q. 23. Did you make more than one full-sized hod in December, 1883, of the same construction as these models?

A. I did, with the exception of the finishing, the bail, the base, and the back handle.

Q. 24. Have you ever manufactured any hods of the same construction as these models for sale?

A. No, sir.

Q. 25. Have you manufactured hods under patent 304,033, a certified copy of which is now offered in evidence and marked Defendant's Exhibit Reynolds' Patent, A. C. W., special examiner, February 24, 1885?

A. The Iron Clad Manufacturing Company have.

Q. 26. Please produce one.

A. That is one.

The witness hands the examiner a coal-hod.

Q. 27. Now, can you produce a blank for this size hod, a body formed up from such a blank, and a body after the first and second operations in the manufacture of coal-hods like the one you have produced?

A. I can, and do so.

Articles produced by the witness respectively marked Defendant's Exhibit "Reynolds' Blank," "first step," "second step," and
49 "third step," and the coal-hod produced offered in evidence and marked Defendant's Exhibit Reynolds' Finished Hod.

The witness also produces a bottom piece, which is marked Defendant's Exhibit "Fourth Step," A. C. W., special examiner, February 24, 1885.

Q. 28. When you commenced to manufacture coal-hods for sale in the market why did you follow the construction illustrated by Defendant's Exhibit Finished Hod instead of following the construction illustrated by Defendant's Exhibits Reynolds' Models?

A. Well, I found that Defendant's Exhibit Finished Hod required less material to complete it than one would made after the models, and also it would stamp up more readily in six ribs or folds than four, as in the models.

Q. 29. Now, please look at Complainants' Exhibit Hoff Hod and state if you have ever seen a hod like that before.

A. I have seen one similar to this (witness holds in his hands Complainants' Exhibit Hoff Hod).

Q. 30. When did you first see such a hod?

A. It may have been in December, 1883.

Q. 31. Who showed it to you?

A. Mr. Young, the superintendent of the Iron Clad Manufacturing Company.

Q. 32. Do you know where Mr. Young got the hod like Complainants' Exhibit Hoff Hod that he showed you at that time?

A. Yes, sir; it was sent from the office of the Iron Clad Manufacturing Company, No. 22 Cliff street, by Mr. Hinman, the vice-president.

Q. 33. What, if anything, did you say to Mr. Young when he showed this hod to you?

A. I told Mr. Young that the hod that I had could be made cheaper than the one that was shown me, from the fact that it would not take so much material to make it.

50 Q. 34. How long did you examine this hod like the Hoff hod at that time?

A. But a very few minutes.

Q. 35. What became of it after that, if you know?

A. I don't know what became of it after I left it in the office at the factory.

Q. 36. Did Mr. Young or any one else until to-day ever show you a hod like the Hoff hod?

A. I saw it two or three days ago for the first time since Mr. Young showed it to me. That was last Friday when Mr. Webb showed it to me in his office.

Q. 37. With this exception, please answer the 36th question.

A. No, sir; they did not.

Q. 38. When Mr. Young showed you this Hoff hod did you make any pencil marks on any part of it?

A. I made no pencil marks whatever on it of any kind.

Q. 39. Have you recently, at my request, made up a coal-hod body and a finished hod in accordance with the Hoff patent, and a coal-hod body and a finished hod in accordance with the Reynolds patent? And, if you answer yea, please produce the same.

A. I have, and produce them.

Q. 40. The articles you have produced were made by you at my request, for use as exhibits in this case, were they not?

A. They were.

Articles produced by the witness offered in evidence and respectively marked Defendant's Exhibits Hoff Body and Hoff Hod and Reynolds Body and Reynolds Hod, A. C. W., special examiner. February 24, 1885.

51 Q. 41. Please state whether or not the two finished hods just produced are of the same size and capacity.

A. They are made from the same sized blank, with the exception of that portion of the cone cut off to make the Reynolds hod; otherwise the measurements are the same.

Q. 42. Now, please state if you have made a comparison to ascertain the difference in cost of manufacture between coal-hods of the same construction as Defendant's Exhibits Reynolds & Hoff Hods; and, if you answer yea, please state what the difference, if any, is.

A. I have. After close measurement I find there is twelve and a half per cent. difference in material used between the two hods in favor of the Reynolds hod.

Q. 43. Is this difference of twelve and a half per cent. an item of importance in the manufacture of coal-hods?

A. It is quite a difference. At the rate the hods are sold and have been selling at this last year, there is scarcely twelve and a half per cent. profit.

Q. 44. Have you, at my request, made a diagram illustrating the size sheet of iron from which and how the blanks for two Reynolds hods can be cut? (Of the same size as Defendant's Exhibit Reynolds Hod.)

A. I have, and produce it.

Diagram produced, offered in evidence, and marked Defendant's Exhibit Reynolds Diagram, A. C. W., special examiner, February 24, 1885.

Q. 45. What are the two small circles on this diagram intended to represent?

A. To represent the blank for the small bottom.

Q. 46. Now, please answer question 44 in respect to Complainants' Exhibit Hoff Hod?

52 A. I have and produce it.

Diagram produced, offered in evidence, and marked Defendant's Exhibit Hoff Diagram, A. C. W., special examiner, February 24, 1885.

Q. 47. Can you state what, if any, difference there is between the size of the sheet required for the two Reynolds hods and the size of the sheet required for the two Hoff hods?

A. Yes, sir; I can. The Hoff hod requires a sheet of iron twenty-six and a half inches by forty-five and the Reynolds twenty-six and a half inches by forty to cut two blanks out of each sheet.

Q. 48. How do these two hods, the Reynolds and the Hoff, compare, in your opinion, in strength and durability and in the facility with which they can be manufactured?

A. I don't know as there would be much difference in the strength and durability, but in the manufacturing, I think, and in fact I know, the Reynolds hod can be made with a poorer quality of material than the Hoff, from the fact that the way in which the Reynolds hod is stamped the material will give more readily to the shape than that of the Hoff hod.

Q. 49. And if the Reynolds hod is made of a poorer quality of material would it still be as durable and answer the purposes for which it is intended as well as the Hoff hod, although the latter has to be made of a better quality of iron?

A. The quality of the material of which the hod is made of has not much to do with the durability of it, only in the working of the iron.

Q. 50. Can you now produce a full-sized hod illustrating the invention you conceived in 1879?

A. I can, with the exception of the bail and base.

53 Q. 51. Please do so.

Witness produces a coal-hod body and says that is it. Offered in evidence and marked Defendant's Exhibit Reynolds December, 1883, Hod, A. C. W., special examiner, February 24, 1885.

Adjourned until Wednesday, February 25, 1885, at 9.30 o'clock a. m.

NEW YORK, *February* 25, 1885—9.30 o'clock a. m.

Met pursuant to adjournment.

Present: Counsel as before.

Continuation of the direct examination of Mr. REYNOLDS by Mr. WEBB:

Q. 52. Prior to 1883, did you ever see a coal-hod having a cone-shaped body formed of a single piece of metal?

A. Yes, sir; I have.

Q. 53. Where did you see such a hod?

A. I think it was at the Excelsior Sheet Iron Works, corner of North Third and Third streets, Williamsburg.

Q. 54. Do you remember who made hods of that construction?

A. That company, I believe, manufactured them. The patentee himself showed me the hod.

Q. 55. Who was the patentee?

A. George Smith.

Defendant's counsel offers in evidence a certified copy of U. S. letters patent No. 124,093, for improvements in coal-scuttles-
54 granted February 27, 1872, and the same is marked Defend, ant's Exhibit Smith Patent, A. C. W., special examiner, February 25, 1885.

Q. 56. Have you made at my request a model illustrating the invention described in this Smith patent? And, if you answer yea, please produce the same.

A. I have and do produce it.

Model produced, offered in evidence, and marked Defendant's Exhibit Smith Model Hod, A. C. W., special examiner, February 25, 1885.

Cross-examined by Mr. MURRAY:

X Q. 57. How long have you been employed by the Iron Clad Manufacturing Co.?

A. Twelve years, with the exception of one year which I was away.

X Q. 58. What have your duties been during the time you have been employed by the company?

A. Superintending the manufacturing of different articles—machinery, &c.

X Q. 59. It has also been a part of your business, has it not, to get up improvements on machinery and the various articles manufactured by the company, and you have, during your employment, applied for several patents which were assigned by you to the company, have you not?

A. I have made improvements and have applied for patents which I have assigned to the company, which is a part of my business.

X Q. 60. Where have the Reynolds models, 1 to 5, inclusive, been since the time you say you made them in 1879?

A. They have been kept in my private office at the factory, with the exception of the time that Mr. Webb has had them in his care.

55 X Q. 61. When did you speak to the parties named in one of your former answers about the models of 1879?

A. About at the same time that I made them.

X Q. 62. And was this the hod you referred to in your conversation with Mr. Young at the time he showed yon the Hoff hod in December, 1883?

A. Those were the models I referred to.

X Q. 63. Can you fix the time in December, 1883, when Mr. Young showed you the Hoff hod?

A. Not exactly the date, but I believe it was in December, 1883, that he showed it to me.

X Q. 64. May it not have been in November, 1883, that he showed you that hod?

A. My mind is fixed on December. It may have been, but I really believe it was December.

X Q. 65. How long was it before the time you made the coal-hod body marked Defendant's Exhibit Reynolds December, 1883, Hod?

A. It may have been a week—something like that—or a few days after I saw the Hoff hod that I made this one.

X Q. 66. How long after that time was it that you made the first hod like the Complainants' Exhibit Iron Clad Hod and the Defendant's Exhibit Reynolds Hod?

A. Very shortly after I made the Reynolds December, 1883, Hod, as that one led me directly into this.

The witness having the Reynolds hod in his hand.

X Q. 67. How long after you made the first Reynolds hod was it before the Iron Clad Manufacturing Company commenced to manufacture hods like it for sale and put them upon the market?

A. It may have been July or August of 1884.

X Q. 68. Is that as near as you can fix the date?

A. Yes; about.

X Q. 69. These hods have been manufactured and sold
56 quite extensively by the Iron Clad Manufacturing Company since July or August, 1884, have they not?

A. Yes, sir; they have.

X Q. 70. Are all, or nearly all, the hods made by the company at present made upon this plan? I mean like the hod shown in your patent and represented by the Reynolds hods here in evidence.

A. The greatest portion of them are made like the Reynolds hod.

X Q. 71. When did you make the coal-hod Defendant's Exhibit Hoff Hod?

A. The 23d of February, 1885.

X Q. 72. When did you first examine a copy of the Hoff patent?

A. At the time their hod was shown me in December, 1883; they were both shown to me together.

X Q. 73. What does the labor cost on a Reynolds hod, such as those the Iron Clad Manufacturing Company have been making since July or August, 1884?

A. I should say about forty-eight cents per dozen.

HENRY S. REYNOLDS.

Taken and reduced to writing and by the witness subscribed and sworn to before me this 25th day of February, 1885.

ARTHUR C. WEBB,
Special Examiner.

Recess taken until 1 o'clock p. m.

After recess, same day, 1 o'clock p. m.
Parties present as before.

57 JOHN J. HINMAN, a witness called on the part of the defendant, being first duly sworn, deposes and says:

Q. 1. What is your name, age, residence, and occupation?

A. My name is John J. Hinman; I am 42 years old; I reside at No. 125 Quincy street, Brooklyn, N. Y., and am by occupation vice-president of the Iron Clad Manufacturing Company.

Q. 2. Please state generally what your duties are.

A. My duties are buying the goods—stock; looking after the sales—seeing the goods are sold. I have never had anything to do with the factory—that is, manufacturing the goods.

Q. 3. Are you acquainted with Mr. F. H. Lawson, of Cincinnati, Ohio?

A. Yes, sir.

Q. 4. Did you have a conversation with Mr. Lawson about a coal-hod which had been patented by Charles Hoff and Peter Renner, of Cincinnati?

A. Yes, sir.

Q. 5. Do you remember when and where that conversation took place and how the Hoff hod was brought to your notice?

A. I recollect the place and the month, but I couldn't say to a day. It took place in Mr. Lawson's office, in Cincinnati, during the month of December, 1883. The Hoff hod was brought to my notice through the solicitation of Mr. Lawson.

Q. 6. Please state the substance of the conversation you had at that time with Mr. Lawson in relation to the Hoff hod.

A. Well, my conversation with Mr. Lawson was a short one, as he is a little deaf. Mr. Lawson thought it would be a very good hod if it could be made cheap—a practical thing to make; suggested that I have an interview with Mr. Hoff; offered to telephone for him, and did telephone for him, and asked him to bring a
58 sample of the hod. Mr. Hoff came there with a sample, and the conversation Mr. Hoff and myself had was about as follows: I asked Mr. Hoff what he thought that coal-hod could be made for, and what he wanted to do with it. His idea was to sell the patent or have some concern manufacture on a royalty. I also told him that I was not practical in this thing, and that I would have to send the sample home to our people. I think I asked him what royalty he would expect in case we thought it a practical thing and would negotiate with him. His answer was, I think, that he thought he ought to have twenty or twenty-five cents per dozen, I am not positive which it was. I then told him I didn't think we could stand that, as we didn't make over half of that on a good many hods we now sold, but if he would send it home we would submit it to our people, as I was not authorized to make contracts or accept propositions, as I was not a practical man in such matters.

Q. 7. What reply did Mr. Hoff make to your inquiries as to the cost of manufacturing hods like the sample he showed you?

A. As near as I can recollect, he couldn't give me any substantial information about that. He thought that his hod could be produced cheaper than any hod made.

Q. 8. Did Mr. Hoff send a sample hod to the Iron Clad Manufacturing Company?

A. He did. The hod was left with Mr. Lawson and he forwarded it on here. It had Mr. Lawson's tag on it when it arrived here.

Q. 9. Did you see this hod after it was received at the Iron Clad Company's office?

A. Yes, sir; I did.

Q. 10. Please look at the hod now shown you and state if it is similar in construction to the hod Mr. Hoff showed you in Cincinnati and the one he sent through Lawson to your company.

A. It is.

59 The hod shown the witness is marked Complainants' Exhibit Hoff Hod, David S. Oliver, notary public.

Q. 11. After you received this hod in New York what did you do with it?

A. I sent it to our factory in Brooklyn.

Q. 12. Why was it sent to the factory?

A. It was sent there for the practical part of our people to figure on and see what it could be produced for.

Q. 13. And was this done?

A. The first time that Mr. Shepard, the president of the Irod Clad Manufacturing Company, came from the factory he told me that

Henry Reynolds had a hod that would knock this higher than a kite.

Q. 14. Was that the first time you had heard of the Reynolds hod?

A. Yes, sir.

Q. 15. Was anything said to you by Mr. Shepard or any one else from the factory in relation to the cost of producing hods of the same construction as the Hoff hod?

A. Mr. Shepard, I think, told me it would be impractical to make it on account of the expense—that is, to make it according to the drawings Mr. Hoff sent us. The iron would have to be rolled so wide that it would cost so much more than the ordinary merchant iron that it would be impractical.

Q. 16. Are coal-hods sold at a small profit?

A. They are—much smaller than any other goods we manufacture.

Q. 17. Since the Iron Clad Company have been manufacturing hods like the Reynolds hod have they made any other kinds?

A. Yes, sir; two other hods; what we call the Iron Clad and the Lady's Favorite.

Q. 18. These two styles do not have the bottom formed in the same manner as the Reynolds hod, do they?

60 A. No, sir.

Q. 19. In about what proportion have these different kinds been manufactured since you commenced the manufacture of the Reynolds hod?

A. About one-half of the hods we have manufactured and sold have been of the Reynolds hod, up to the present time.

Q. 20. Can you produce a Lady's Favorite and Iron Clad hod?

A. I can, and do so.

The hods produced by the witness are offered in evidence, and respectively marked Def't's Exhibit Lady's Favorite and Def't's Exhibit Iron Clad Hod, A. C. W., spec. ex'r, Feb'y 25, 1885.

Q. 21. What branch of the business of the Iron Clad Manufacturing Company does Mr. Shepard devote his attention to particularly?

A. The manufacturing the goods at the factory. In other words, what we call the factory man.

Q. 22. Did you make any pencil marks on the hod Mr. Hoff sent to the Iron Clad Company through Mr. Lawson?

A. I did not.

Cross-examined by Mr. MURRAY:

X Q. 23. The drawings that were sent on by Mr. Hoff, that you referred to, was a copy of his patent, was it not?

A. He sent a copy of the patent, and my impression is a rough sketch on a piece of brown paper.

X Q. 24. How long did the hod sent by Mr. Hoff remain in the possession of the Iron Clad Manufacturing Company before it was returned to him?

A. I cannot say. It might have been a month or it might have been two months.

61 X Q. 25. When the hod was returned did you write Mr. Hoff or Mr. Renner, giving any reasons why your company declined to accept or take an interest in the patent, or manufacture on a royalty?

A. I think we wrote them a short letter, stating that we did not think it a practical thing to make. That is my impression, sir.

X Q. 26. Your company usually carries a large stock of coal-hods, does it not?

A. We carry a large stock in the season of the trade—summer and fall.

X Q. 27. When did you first commence to manufacture the Reynolds hod?

A. It was May, 1884, I think, before we had samples to send out. I am not positive about this, as I have not taken the trouble to find out; it may have been a little earlier or a little later.

X Q. 28. Is there any difference between your selling price of the three kinds of hods made by your company; I mean, of course, hods of the same size and finish?

A. We sold the Reynolds hod and the Iron Clad hod, and offered them at the same price, in some instances, and the Lady's Favorite hod at a higher price than either one.

X Q. 29. When there was a difference made in price between the Iron Clad and the Reynolds hod, in which hod was the difference in favor of?

A. We always asked more, when we made any difference at all, for the Iron Clad hod.

Redirect by Mr. WEBB:

R. D. Q. 30. How many times were you in Cincinnati during the winter and fall of 1883?

A. I was there once during the winter of 1883; that was in December. I was there in June, 1883, also.

R. D. Q. 31. At what hotel did you stop when you were there in December, 1883?

62 A. Gibson House.

JOHN J. HINMAN.

Taken and reduced to writing and by the witness subscribed and sworn to before me this 25th day of February, 1885.

ARTHUR C. WEBB,
Special Examiner.

Adjourned until Thursday, February 26, 1885, at 10 o'clock a. m.

NEW YORK, *February* 26, 1885—10 o'clock a. m.

Met pursuant to adjournment.

Present: Counsel as before.

FRANK E. YOUNG, a witness called on behalf of defendant, being first duly sworn, deposes and says:

Q. 1. What is your name, age, residence, and occupation?

A. My name is Frank E. Young; I am thirty-five years old; re-

side at 484 Willoughby avenue, Brooklyn, New York, and am by occupation superintendent of the factory of the Iron Clad Manufacturing Company.

Q. 2. How long have you been superintendent of the Iron Clad Manufacturing Company?

A. Since January 1st, 1880.

Q. 3. Are you acquainted with Henry S. Reynolds?

A. I am,

Q. 4. Are you familiar with Mr. Reynolds' invention in coal-hods, represented by Defendant's Exhibit Reynolds' Finished Hod?

A. I am.

63 Q. 5. Please state when first you learned anything about that invention.

A. The latter part of January, 1880.

Q. 6. How do you fix that date—by what circumstance, if any?

A. By my engagement with the Iron Clad Manufacturing Company, taking place on the first of January. It took me to about the last of the month to get thoroughly acquainted with all the shops, tools, and machinery and everything connected with the manufacture of goods generally; and during that time I was shown these samples or models as specimens of what had been done toward the manufacture of a coal-hod.

Q. 6. Please state what models you refer to and who showed them to you.

A. These are the models I have in my hand, marked Defendant's Exhibit Reynolds' Models 1 to 5, inclusive. They were shown to me by Mr. Henry S. Reynolds.

Q. 7. What did you understand when Mr. Reynolds showed you these models—the invention to be that he was seeking to illustrate by them?

A. That a coal-hod could be made in one piece by turning the lower edge in by lapping or crimping to form the bottom.

Q. 8. Please look at the hod now shown you and state if you have ever seen a hod having its bottom constructed like that.

A. I saw a hod in July, 1883, with a bottom constructed like that.

The hod shown is marked Complainants' Exhibit Hoff Hodd.

Q. 9. Where did you see it?

A. At the factory of the Iron Clad Manufacturing Company, in Brooklyn.

Q. 10. Do you know where that hod you saw at that time came from?

64 A. From the New York office of the Iron Clad Manufacturing Company.

Q. 11. Do you know of whose make that hod was supposed to be?

A. Hoff & Renner, I believe.

Q. 12. Why was it sent to the factory?

A. As being something new in the method of making coal-hods.

Q. 13. Do you know what the object was in sending the hod to the factory?

A. To see if the hod could be manufactured any cheaper than other hods that we had.

Q. 14. How long was this hod at the factory?

A. About two weeks.

Q. 15. Where was it during that time?

A. In my office behind my desk.

Q. 16. Did Mr. Reynolds examine it while it was there?

A. He did.

Q. 17. And did he make the examination in your office?

A. He did.

Q. 18. How much of an examination of it did he make?

A. Well, he merely picked it up, looked it over, and set it down again.

Q. 19. Did he say anything to you about it?

A. I can beat that hod all to pieces by those models that have been lying up in Ed.'s office so long.

Q. 20. You say the hod was at your office about two weeks. What was done with it after that?

A. Sent it to the New York office of the Iron Clad Manufacturing Company.

Q. 21. I think you are mistaken when you say you saw this hod in July, 1883; please consider the 8th question again.

A. Well, I get that month by remembering the date of a letter written in that month by Hoff & Renner which accompanied
65 the hod when sent to the factory of the Iron Clad Manufacturing Company.

Q. 22. What, if anything, occurred to you when you examined this Hoff hod at the factory?

Objected to as incompetent and immaterial.

A. It impressed me as not a desirable hod to make.

Q. 23. Did you make any pencil marks on the bottom of that Hoff hod?

A. I did not.

Q. 24. Who is the Ed.s referred to in your answer to the 19th question?

A. Edward Peacock, formerly of the tin shop at the factory of the Iron Clad Manufacturing Company.

Q. 25. Prior to your employment as superintendent of the Iron Clad Manufacturing Company had you ever been engaged in the manufacture of metal goods?

A. Not directly. I had been with a concern for five years making similar goods, but I was employed as buyer. The concern was the U. S. Stamping Company.

Q. 26. Please look at Defendant's Exhibit Zinc Cylinder, and state if you have ever seen a like article having its bottom or head closed in the same manner as represented by the exhibit.

A. I have.

Q. 27. Please state when first and where you saw such an article and for what purposes it was intended or used.

A. In 1873, in Cliff street between Fulton and John streets; it was used for the purpose of holding sheet zinc.

Q. 28. Have you or not frequently seen such iron cylinders for holding zinc?

A. I have.

66 Q. 29. And have such iron cylinders been in general use for this purpose since 1873?

A. They have.

Q. 30. Please look at Defendant's Exhibit Hoff Hod and Defendant's Exhibit Reynolds Hod, and *and* state if there is any difference in the quantity of iron required to make these hods; and, if you answer yea, what the difference is.

A. Yes; about twelve and a half per cent. less in the Reynolds hod than in the Hoff.

Q. 31. Can you produce a blank required for each one of those hods?

A. I can, and do.

Blanks produced by the witness and respectively marked Defendant's Exhibit Reynolds Blank No. 1 and Hoff Blank, A. C. W., spec. ex'r, Feb. 26, 1885.

Cross-examination waived.

FRANK E. YOUNG.

Taken and reduced to writing and by the witness subscribed and sworn to before me this 26th day of February, 1885.

ARTHUR C. WEBB,
Special Examiner.

Recess until 1 o'clock p. m.

After recess, same day, 1 o'clock p. m.
Present: Counsel as before.

EDWARD M. PEACOCK, a witness called on the part of the defendant, being first duly sworn, deposes and says:

67 Q. 1. What is your name, age, residence, and occupation?

A. My name is Edward M. Peacock; I am 32 years of age; reside, 796 Lafayette avenue, Brooklyn, New York, and am by occupation foreman of the tin shop of the Iron Clad Manufacturing Company.

Q. 2. What class of goods are made in the tin shop, and how long have you been foreman of it?

A. Tin milk goods, galvanized iron ash-cans and coal-hods, and other general work of a tin shop. I have been foreman four years since January 1st, 1881.

Q. 3. Prior to January 1st, 1881, were you employed by the Iron Clad Manufacturing Company? And, if so, in what capacity?

A. I was as journeyman tinsmith.

Q. 4. For how long a time?

A. Since April, 1873.

Q. 5. Are you acquainted with Henry S. Reynolds? And, if so, how long have you known him?

A. I am. I have known him since the time of his employment by the Iron Clad Manufacturing Company, which was in the summer of 1873.

Q. 6. During that time have you known of Mr. Reynolds making any inventions or improvements in machines and articles of the class used and made by the company? And, if so, please state what inventions or improvements he has made, to your knowledge.

A. When he first came to the Iron Clad it was introducing a new coal-hod; since then he has had several patents on the same; also a watering-pot and machines for hemming heel counters. He has also made improvements in metallic shingles, with other minor improvements and methods of manufacturing goods. In fact, he has been constantly employed in that line.

Q. 7. What improvements has he made in coal-hods?

68 A. Several, the principal of which I consider the forming of the bottom and body of one piece by lapping or folding the sides over at right angles, or nearly, to form the bottom.

Q. 8. When did you first know of his making that invention?

A. About December 8th to 11th, 1879.

Q. 9. How do you fix this date?

A. From the fact that I had been out of the employ of the Iron Clad Manufacturing Company for some four months, and returned on December the 8th, 1879, and that Mr. Reynolds showed me a hod model made in that manner within two or three days after my return.

Q. 10. Please look at the five pieces marked Reynolds' Models 1 to 5, inclusive, and state if you have ever seen them before, and if any of those pieces is the hod model referred to by you in the last answer.

A. I have seen them before, but I could not swear that either of these is the exact one he showed me at that time, although I recognize them as having been in my possession from January 1st, 1881, until some time last year.

Q. 11. Do any two of those pieces put together so as to form a complete hod body?

A. They do.

Q. 12. Please put the two pieces together which form a complete hod body.

A. The two copper ones form a complete hod body when put together.

Q. 13. Please state whether or not these two copper pieces when put together to form a complete hod body differ in the method of forming the bottom from the method illustrated by the model Mr. Reynolds showed you in December, 1879.

A. They do not.

Q. 14. Please hear the examiner read question and answer seven, and state what you mean when you say 'the forming of the bottom and body in one piece."

69 A. I mean, as stated in the previous answer, the folding or turning in a portion of the body by lapping or crimping to form folds by which to take up surplus stock, thereby forming the bottom.

Q. 15. Where did you keep these models while they were in your possession?

A. In a pigeon-hole in a shelf in my office.

Q. 16. You mean your office at the factory?

A. At the factory of the Iron Clad Manufacturing Company at Brooklyn.

Q. 17. What office does Mr. Reynolds occupy at the factory?

A. He has no office; he has a private machine shop.

Q. 18. Do you mean at the present time?

A. Yes, sir.

Q. 19. Was he at one time in charge of the same department that you are foreman of now?

A. He was at two separate times. The last time from November or December, 1879, until January, 1881, at which time I took his place.

Q. 20. During that time did he have an office at the factory?

A. During the latter period he occupied the same office which I now use.

Q. 21. After Mr. Reynolds showed you the models in December, 1879, of his coal-hod invention, what did he do next in relation to that invention?

A. He worked at it for a while, until he seemed to be satisfied that it was practicable, and then left it for something else.

Q. 22. Did he take it up again?

A. Yes.

Q. 23. When?

A. After occasionally mentioning it, he commenced to make the tools for its manufacture in the latter part of 1883.

Q. 24. Please look at Defendant's Exhibit Reynolds' Finished Hod, and state, if you know, when the Iron Clad Manufacturing
70 Company commenced to manufacture coal-hods of that construction and if you are familiar with the manufacture of the same.

A. They commenced to manufacture them in the late spring or early summer, and I am familiar with all the details of its manufacture.

Q. 25. Of how many pieces is the body and bottom of that hod composed?

A. Two.

Q. 26. Please describe the operation of making it.

A. Reynolds' blank is cut from a sheet of iron and then formed into the shape of Exhibit First Step. It is then put onto a form or die the shape of Exhibit Second Step and struck with a metal force having corrugations the reverse of Exhibit Second Step, which forms it into that shape. It is then put on a form shape of Exhibit Third Step and struck with a flat metal force, which closes the corrugations and forms part of the bottom. The hod is then put over

a die having an oval opening and struck with a punch of the same shape, thereby cutting a smooth and true hole in the center, as shown by Exhibit Third Step, for receiving a small bottom, Exhibit Fourth Step. Exhibit Fourth Step is then pushed into the opening from the inside and placed over a tool the proper shape and struck on the outside with a flat tool, which completes the bottom, as shown in Reynolds' finished hod.

Q. 27. After the second stamping operation which flattens the ribs, as shown by Exhibit Third Step, what is the object of the next or cutting operations?

A. Experience has shown us that stamping is apt to draw the iron in different places at different times according to its quality, and would thereby leave rough edges around the opening, however nicely tools may be made, and we prefer trimming so as to have a true edge to receive the bottom, Exhibit Fourth Step.

71 Q. 28. Can you produce one of the blanks for Exhibit Fourth Step?

A. I can and do.

Article produced by the witness, offered in evidence, and marked Defendant's Exhibit Blank for Bottom, A. C. W., spec. ex'r, February 26, 1885.

Q. 29. Please look at Defendant's Exhibits Diagram of Hoff Hod and Diagram of Reynolds Hod, and state whether or not any blanks like Defendant's Exhibit Blank for Bottom could be got out of the cuttings or waste of either of those sheets; and, if so, how many from each sheet.

A. They can; two from the sheet of Reynolds' diagram, as shown, and four from sheet diagram of Hoff's hod.

Q. 30. Making a comparison between the blanks to form two complete Reynolds hod bodies and two complete Hoff hod bodies, which requires the most material?

A. The Hoff hod body.

Q. 31. What is the difference?

A. About twelve and a half per cent.

Q. 32. Please look again at Defendant's Exhibit Diagram of Hoff Hod, and state whether the blanks marked out on that sheet have been marked out to be cut to the best possible advantage for the production of two hods of the same capacity and dimensions as Complainants' Exhibit Hoff Hod.

A. As far as my knowledge goes, yes.

Cross-examined by Mr. MURRAY:

X Q. 33. How long did it take Mr. Reynolds to make the machinery for the manufacture of the Reynolds hods as now manufactured by the Iron Clad Company?

A. From first until last about eight months.

72 X Q. 34. That is, you mean the machinery for all the different-sized hods?

A. Yes, sir; I do.

X Q. 35. How long before the machine for one size of hod was made and hods manufactured by it?

A. There was one set of tools made that we called experimental which were finished in about six weeks or two months from the time he commenced making the tools.

X Q. 36. Did you ever see a complete coal-hod made of the form shown by the Reynolds Models 1 to 5, inclusive, of December, 1879?

A. Yes, sir.

X Q. 37. When?

A. When he first recommenced to work on the hod in the latter part of 1883.

X Q. 38. Were there more than one of these made, and were they ready for sale?

A. There was quite a number made, but none finished or put upon the market.

X Q. 39. Is Defendant's Exhibit Reynolds December, 1883, Hod one of these completed hods that was not finished for the market?

A. It is somewhat similar, but not as near completion as some; there were some that were all finished ready to put the hoop on. I believe one or two had hoops on.

X Q. 40. Do you know why these were not finished and put upon the market?

A. I do not.

X Q. 41. The only difference between the Exhibit Reynolds 1883 Hod and the Models 1 to 5, inclusive, of 1879 is that the seam in the December, 1883, hod is from front to rear of the hod, while those in the models are intended to be from side to side, is it not?

A. It is, with the alteration of folds consequent to the change of seam.

73 X Q. 42. Did you ever see, prior to December, 1883, any hod or model of a hod like Reynolds Exhibit 1 to 5, inclusive, put together and finished?

A. I have.

X Q. 43. Was it one of those models that are here in evidence?

A. It was one of these models—the copper one. When it left my possession it was together and in shape.

X Q. 44. When was it put together and in shape and by whom?

A. That I can't say; but it was prior to January 1st, 1881, as I found it in my office in the tin shop of the Iron Clad Manufacturing Company when I took possession January 1st, 1881.

X Q. 45. It is in the same condition now as it was when it left your possession, with the exception that the parts are slipped asunder?

A. It is.

X Q. 46. About what proportion of coal-hods manufactured by the Iron Clad Manufacturing Company within the last eight months are of the kind represented by Defendant's Exhibit Reynolds Hod? I mean all sizes having that bottom.

A. I have no positive information or knowledge, but would judge there was about one-half.

The witness reads his testimony, and desires to state:

That in answer 24 of my direct examination, in stating that the Iron Clad Manufacturing Company commenced to manufacture hods like the Reynolds hod in the late spring or early summer of 1884, I would add that we commenced to make bodies before the tools for completing the hod were finished, and refer to my answer to question 33 in the cross-examination; and that Defendant's Exhibit Reynolds Finished Hod was the first size ready for the
74 market and Complainants' Exhibit Iron Clad Hod was the next size ready.

EDWARD M. PEACOCK.

Taken and reduced to writing and by the witness subscribed and sworn to before me this 26th day of February, 1885.

ARTHUR C. WEBB,
Special Examiner.

Same day, 4 o'clock p. m.
Parties present as before.

DAVID MCKENZIE, being called on the part of the defendant, and first sworn, deposes and says:

Q. 1. What is your name, age, residence, and occupation?

A. My name is David McKenzie; I am 33 years of age; reside at Brooklyn, New York, and am by profession a sheet-iron worker.

Q. 2. With whom are you employed?

A. The Iron Clad Manufacturing Company.

Q. 3. How long have you been in the employ of the Iron Clad Manufacturing Company?

A. Between ten and eleven years.

Q. 4. What department have you worked in?

A. Manufacturing coal-hods.

Q. 5. Are you acquainted with Henry S. Reynolds?

A. Yes, sir; I am.

Q. 6. How long have you known him?

A. About fourteen years.

Q. 7. Please look at the articles now shown you and state if you ever saw them before.

A. Yes, sir; I have seen a hod that was similar to that before.

Q. 8. By similar to that do you mean similar to those two copper pieces you hold in your hand?

75 A. Yes, sir.

The examiner certifies that the articles shown the witness are marked Defendant's Exhibits Reynolds' Models 1 to 5, inclusive, A. C. W., spec. ex'r, Feb'y 24, 1885.

Defendant's counsel requests the examiner to state whether or not the exhibit tag was on those models when they were shown the witness.

The examiner states that it was not, having been removed heretofore to examine the models respectively.

Q. 9. Who showed you the hod which was similar to those two copper pieces?

A. Mr. Reynolds.

Q. 10. When was that?

A. That was in the latter part of 1879 or 1880; 1880, I believe it was.

Q. 11. In what month in 1880?

A. January.

Q. 12. How do you fix that date in your mind?

A. Because Mr. Young came there at that time to take charge of the factory, and that's what makes me remember it.

Q. 13. Did you understand, when Mr. Reynolds showed you the model, what the invention was he was trying to show by the model?

A. Yes, sir; I did.

Q. 14. What did you understand it to be?

A. I understood it to be the body and bottom in one piece, the body folded to make the bottom.

Cross-examination waived.

DAVID McKENZIE.

Taken and reduced to writing and by the witness subscribed and sworn to before me this 26th day of February, 1885.

ARTHUR C. WEBB,
Special Examiner.

76 NEW YORK, *February* 27, '85—10.30 a. m.

Met pursuant to adjournment.

Present: Counsel as before.

WILLIAM H. WELLS, a witness called on behalf of the defendant, and being first duly sworn, deposes and says:

Q. What is your name, age, residence, and occupation?

A. William H. Wells; I am 26 years old; reside in Brooklyn, N. Y., and I am a salesman with Robert Crooks & Co., 54 John street, metal importers.

Q. 2. How long have you been in the employ of Robert Crooks & Co.?

A. Since October 1st, 1883.

Q. 3. What, if anything, did you do prior to that?

A. I was in the employ of Phelps, Dodge & Co., of No. 11 Cliff street, metal importers.

Q. 4. How long were you with them and in what capacity were you employed?

A. From May 1st, 1876, until October, 1883. I was employed as shipping and entry clerk; also as salesman later on.

Q. 5. Look at the article now shown you and state if you know what it is.

A. That is a cask for the protection of sheet zinc.

Article shown the witness is the exhibit marked "Zinc Cylinder."

Q. 6. Have you ever seen an iron cylinder of that construction before? And if you answer yea, state generally all you know about the use of such cylinders and how you became possessed of your knowledge of the same.

77 A. I have, and my knowledge dates from my first connection with Phelps, Dodge & Co., when they were manufacturers of zinc at Birmingham, Conn., and from examination of packages when they arrived from the factory for storage, and as they were opened for the purpose of retailing the zinc. The package consists of an iron cylinder riveted and the ends hammered over and fastened to a wooden head and bottom.

Q. 7. Have cylinders of this construction been used extensively or not?

A. I believe they have been used by all manufacturers of zinc from that time to the present, and I have seen casks similar to that made by the Matthisen & Hechler Zinc Company, of La Salle, Ill., and the Illinois Zinc Company, of Peru, Ind.

Q. 8. Were both ends of these cylinders usually closed in the same manner and as shown by the Exhibit Zinc Cylinder?

A. They were.

Q. 9. What time do you refer to in answer to question 7?

A. From May, 1876.

Cross-examination waived.

WILLIAM H. WELLS.

Taken and reduced to writing and by the witness subscribed and sworn to before me this 27th day of February, 1885.

ARTHUR C. WEBB,
Special Examiner.

Same day.

HENRY L. BREVOORT, a witness on behalf of the defendants, have been first duly sworn, in answer to interrogatories propounded by Mr. WEBB, says:

Q. 1. What is your name, age, residence, and profession?

78 A. Henry L. Brevoort; I am 36 years of age; I reside in the city of Brooklyn, State of New York, and I am by profession a mechanical engineer.

Defendant's counsel offers in evidence certified copy of United States letters patent No. 156,596, granted to Anna Powers November 3d, 1874, for "improvement in paper boxes," and the same is marked "Defendant's Exhibit Powers' Box Patent, February 27, 1885."

Also certified copy United States letters patent No. 191,071, granted Edward F. O'Toole, dated May 22, 1877, for "improvement in coal-hods," and the same is marked "Defendant's Exhibit O'Toole Patent, February 27, 1885."

Also certified copy United States letters patent No. 103,079, granted to Timothy J. Powers, dated May 17, 1878, for "improvement in

cartridge cases," and the same is marked "Defendant's Exhibit Powers Patent, February 27, 1885."

Q. 2. What experience have you had relative to the constructing of metallic vessels, and have you ever been called upon to testify as an expert witness?

A. I have had considerable experience in the construction of metallic vessels—such as oil-cans, soda-water fountains, boilers, lanterns, and various articles made of sheet metal. I have been very frequently called upon to testify as an expert witness in suits relating to patents, and I have so testified in between 300 and 400 cases.

Q. 3. Have you read the evidence of Ferdinand Dieckman, who was called as an expert witness by the complainants, and have you examined the exhibits referred to in said testimony?

79 A. I have read the testimony and I have examined the exhibits therein referred to.

Q. 4. Have you read the evidence of Henry S. Reynolds, John J. Hinman, Frank E. Young, Edward Peacock, and William H. Wells, and have you examined the exhibits referred to therein?

A. I have read the depositions referred — in the question and I have examined the various exhibits and I understand them.

Q. 5. Have you read the letters patent No. 279,871, granted to Hoff and Renner June 19, 1883, for "improvement in coal-hods," being the patent in suit, and do you understand the same?

A. I have carefully read the patent many times and I think I understand that which is there shown and described.

Q. 6. Please state what you understand to be the invention therein described and claimed.

A. The patent describes a sheet-metal vessel and shows in the picture a coal-hod, but in the specification I find the following:

"It is also evident that my invention is applicable to buckets, scoops, and many other vessels made of sheet metal."

The only peculiarity of the vessel shown in the drawings consists in the structure of the bottom. This made in the following way: The metal which is to form the bottom is brought into cone shape and this cone then has circumferential grooves made around it, the metal being forced inward to form the grooves.

I do not understand that it is material exactly what shape these grooves have; also, I understand that they may be truly circumferential, or that they might be one long groove in a spiral form.

The patent says as follows: "I do not desire to limit myself to any particular form of crimp or fold for the bottom of the hod nor to the exact shape of the blank." * * *

80 After the tapered end of the blank has been compressed by the circumferential grooves as described, the rest of the article being properly held on dies, a plunger is brought to bear upon the apex of the crimped cone, and the crimps are then forced one upon the other, the crimps giving the conical portion the capacity within the limits of the strength of the metal of being forced into a plane, the forcing of the conical portion into a plane being

thus effected upon previously formed lines, which are the ones upon which the metal is to bend on going from the conical to the flat shape. It is evident that if the conical end of the hod was not crimped, but was merely subjected to the action of the plunger, a flat bottom would result, and the metal would bend upon irregular and unexpected lines, and the result would not be a commercial article; but, however, by making the circumferential crimps the metal is forced to bend when subjected to the action of the plunger in such a way as to make a serviceable and practical bottom to the vessel. By the method described in the patent the body and bottom of the vessel are all made of one piece, and the bottom is all over its surface practically composed of either two or three thicknesses of material.

I do not understand that the vessel need be conical at any portion other than that which is to form the bottom; the rest of the vessel may be cylindrical or of any other desired shape.

Now, it is evident that this is not a patent for any kind of bottom made by compressing the metal upon itself, for this is not, as I understand it, claimed; but, on the other hand, the patent is for a vessel having a bottom formed substantially as therein described—that is to say, taking the first claim, which is for a process, I find that the said claim first sets forth that a cone-shaped body is to be formed, and that then this cone-shaped body is to be folded into crimps, so that the bottom can be formed. I suppose, also, that the claim involves the third step, of forcing the bottom flat.

81 The second claim is for an article of manufacture, which article of manufacture is to have its bottom so crimped or folded that when the plunger has acted upon it a series of annular ribs or rings of progressively increasing diameter will make up the bottom of the vessel.

Q. 7. Have you read the various patents introduced in evidence by the defendant in this case?

A. I have.

Q. 8. Please compare the defendant's hod, "Complainants' Exhibit Iron Clad Hod" or Defendant's Exhibit Reynolds Hod," with the construction of hod described and claimed in complainants' exhibit patent and state whether they are similar or dissimilar, and give your reasons for any opinion you may express. Refer in your answer to any exhibits in the case and any facts within your knowledge.

A. I have made the comparisons called for in the question. I do not think that the hods manufactured by the defendants contain the invention of either the first or the second claims of the complainants' patent. My reasons for this opinion are as follows: but before giving them I will state the structure, as I understand it, of the defendants' hod.

A body of sheet metal is first formed. This body is in the shape of the frustum of a cone. The portion of this body which is to form the bottom, or, rather a part of the bottom, is then bent in, the surplus metal being taken up in radial folds, which is possible with the defendant's structure, because, unlike the complainants', a true

cone is not formed. The bottom, thus folded in radial folds, is squeezed flat, and a plate of metal properly flanged is fastened in the opening in the bottom, and when thus secured completes the formation of the bottom of the vessel. Thus a portion of the bottom of the vessel is made up of the turned-in sides of the
82 body of the vessel, and a portion is made by this separate plate, without which no complete bottom would exist.

I do not think that this structure of the defendants or the method of forming the structure embodies any of the inventions of the Hoff patent, because the article resulting is not the article claimed in the second claim and the process of making the article is substantially a different process.

Turning to the first claim, the first step therein referred to is the forming of the cone-shaped portion for the bottom of the vessel.

The defendants form a part of a cone, it is true, but they do not so form this part as to enable it to form the entire bottom for the vessel, as do the complainants, the complainants' structure requiring that a complete cone should first be formed.

The next step of the process claim of the patent consists of the crimping of the cone.

This the defendants do not do, and I think there is an important difference to be considered in this connection. No crimps, as I understand it, would be the equivalent for the crimps shown in the Hoff patent, unless such crimps were adapted to make a bottom, such as is shown in the Hoff patent—fold on the crimped lines. Now, to make a bottom such as is shown in the Hoff patent the crimps must be circumferential, in contradistinction to radial crimps, for if the cone shown in figure 3 of the Hoff patent was formed and it was attempted first to crimp the conical end with radial crimps, in contradistinction to circumferential crimps, then the conical end, after being so crimped, would, when submitted to pressure, not necessarily fold upon the crimped lines, but would be in the same condition as an uncrimped body and would fold upon accidental lines, thus producing necessarily a useless article. Indeed, radial crimps
83 could not be made at all in the conical body of the Hoff patent, or at least none could be made which would in any way aid in the even gathering-in of the metal when the crimped portion was submitted to pressure.

The defendants are able to construct their vessel with radial crimps because they form the bottom partly out of the bent-in sides of the vessel and partly out of separate pieces of material, while Hoff forms his bottom entirely as an integral portion of the body of the hod.

For these reasons I do not think that in forming the defendants' hod it can be said that they fold "the cone end of the said body in crimps to form the bottom;" also they do not form the entire bottom in this way, and they do not fold the part that makes up a portion of the bottom of their hod into crimps which are practically useful for a structure like Hoff's or which could be used as the equivalent of the crimps shown by Hoff. Therefore I do not think, in the manufacture of their hod, the defendants practice the process of this first claim.

As to the second claim, the defendants' hod is not formed in a single piece, and it has not got its bottom crimped or folded to form a series of annular ribs or rings of progressively increasing diameter, but, on the other hand, the bottom of the defendants' hod is made of two pieces. There are no annular ribs or rings, but there are radial folds.

Referring to the exhibits in this case, it seems to me that if the Hoff patent is to be so broadly understood as to enable it to take in the defendants' structure, that then it would also in substance embrace structures of an earlier date. For example, stiff-ners for the counters of shoes have long had a part of their bottoms formed of radial crimps, the material being compressed and flattened after it was so crimped. Such a crimping and subsequent flattening is shown and described in the cartridge of the Powers patent No. 103,079, and especially in the Powers patent No. 156,591, where a paper box is shown having a crimped end formed with radial
84 crimps which are subsequently flattened, leaving a hole in the centre of the bottom, which hole is subsequently covered by another piece of paper, the bottom being practically identical with the structure of the defendants.

The Defendant's Exhibit "Zinc Cylinder" is another example of this. This cylinder consists of a metal vessel; the end is formed by crimping in radially and then flattening the metal forming the crimps—a circular piece of wood being utilized to complete the closure of the bottom, which cannot be closed in vessels having radial crimps without the use of a separate and independent closing device used like the wooden plate in the zinc cylinder or the metal plate in the defendant's hod.

In the patent of Smith, No. 124,093, is shown a coal-hod having a conical bottom. Hoff's invention merely consisted in a method by which Smith's conical bottom could conveniently be made flat, the metal being forced to yield when flattened upon previously crimped lines. Now, as Smith's hod stands, the defendant's crimp could not be put into it, and if they were put into it in some way, and the crimped bottom was then operated upon by a plunger, the result would be no better than if the bottom had been submitted to the action of the plunger before any crimps had been put into it whatsoever.

In my opinion, neither the defendant's method or article is the same method or the same article as is referred to, described, and claimed in the Hoff patent, and that if the Hoff patent is regarded as one for any vessel having any part of its bottom formed by creasing or crimping portions of the metal and then squeezing such crimps flat, that then the Powers patent for a paper box or the old zinc cylinder both show such methods,

I think it is undoubtedly true that the Hoff patent must be understood as for a complete cone, which cone is crimped cir-
85 cumferentially and which crimped cone is then compressed so as to form the bottom of the article.

And, being cross-examined by Mr. MURRAY, says:

X Q. 9. Would it make any difference, in your opinion, in the structure of the defendant's hod, if the small patch in the bottom were one-half or one-quarter the size it is?

Q. Unless the required patch was so small that the radial crimps could not be formed, its size would be a matter of no consequence, in my judgment.

X Q. 10. Then, in your opinion, you believe it impracticable to fold in a bottom like the defendant's structure and make a durable, merchantable article without a patch of some kind was used in the bottom?

A. Yes.

X Q. 11. Would it make any difference in the structure of defendant's hod if less of the cone end were cut off and the bottom formed in annular crimps and the opening in the bottom were closed by a patch?

A. Yes, it would make a difference, in my judgment, for this would be practicing upon so much of the bottom as was not made up of the patch of Hoff's invention, the crimps, as I understand it, which are referred to in the question being Hoff's crimps.

X Q. 12. Would it not occur to any mechanic skilled in the art to which this invention relates to cut off the cone end of the Smith hod, if he desired the fold the bottom in flat in radial crimps.

A. I think so, in view of the Powers patent and the zinc cylinder, which would have practically told him exactly what to do.

And, being further examined by Mr. WEBB, says:

R. D. Q 13. Please look at Defendant's Exhibit Reynolds
86 Models 1 to 5, inclusive, and Defendant's Exhibit Reynolds December, 1883, Hod, and state whether these exhibits do not show or illustrate hods having crimped or folded bottoms subsequently compressed or flattened.

A. They do.

HENRY L. BREVOORT.

Taken and reduced to writing and by the witness subscribed and sworn to before me this 27th day of February, 1885.

ARTHUR C. WEBB,
Special Examiner.

Adjourned until Saturday, Feb'y 28th, 1885, at 10 a. m.

NEW YORK, *Feb'y* 28, 1885—10 o'clock a. m.

Met pursuant to adjournment.

Present: Counsel as before.

Defendant closes.

88 UNITED STATES PATENT OFFICE.

CHARLES HOFF, of Cincinnati, Ohio, assignor of one-half to Peter Renner, of same place.

Coal-Hod.

Specification forming part of Letters Patent No. 279,871, dated June 19, 1883; application filed March 26, 1883. (No model.)

To all whom it may concern:

Be it known that I, Charles Hoff, a citizen of the United States, residing at Cincinnati, county of Hamilton, State of Ohio, have invented certain new and useful improvements in coal-hods, of which the following is a specification.

My invention relates to coal-hods and similar sheet-metal vessels. Its object is to produce a stronger and better article than those in common use at a less cost of labor and material.

With this object in view my invention consists in forming the bucket from a blank so shaped as to be bent into a cone or funnel shaped body, then folding the cone end of said body in crimps to form the bottom, all of which will be fully understood from the following description of the accompanying drawings, in which—

(Here follows diagram marked p. 87.)

Figure 1 is a perspective view of a coal-hod constructed according to my invention. Fig. 2 is a top plan view of the same. Fig. 3 is a side elevation of the blank formed into a cone or funnel shaped vessel, the bottom part showing in dotted lines the preliminary corrugations, indicating lines on which the metal will be crimped and folded down to form the bottom. Fig. 4 is central vertical section of the completed bucket or hod. Fig. 5 is the blank from which the body of the bucket is formed.

Similar reference-letters are used to indicate identical parts wherever they occur throughout the various views.

The blank A, Fig. 5, being cut out to the shape shown, is bent around a cone-shaped former and the edges *a a* united in any suitable manner. This brings the blank to the form shown in Fig. 3. After the seam has been made the partially-formed blank, Fig. 3, is placed upon a former having its end grooved or turned off in steps below the line *x x*, as shown in dotted lines, Fig. 3. Then, by suitable clamping-jaws, the metal in the lower end of the blank is pressed to the shape of the former, commencing at the upper edge or groove, and successively pressing the metal into each groove in the former until the lower one has been pressed in. After this operation has been performed the blank having the partially-folded bottom is placed and clamped upon a former the exact shape of the interior of the hod, the exterior clamping device grasping the body of the hod just above the line *x x*. Then, by subjecting the partially-crimped bottom to the action of a plunger, the cramps are folded

(No Model.) 87

C. HOFF.

COAL HOD.

No. 279,871. Patented June 19, 1883.

Fig. 1

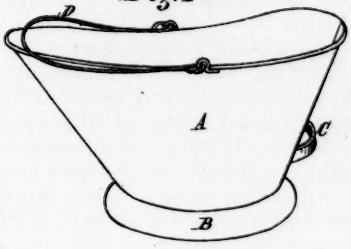


Fig. 2

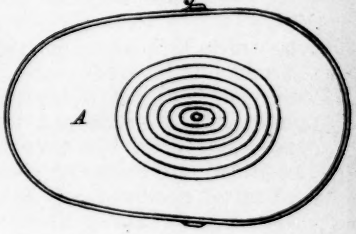


Fig. 3

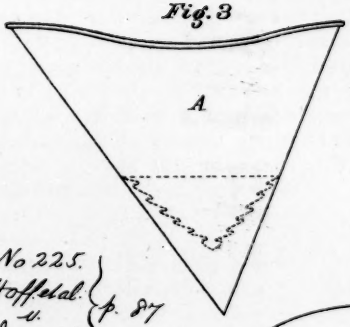
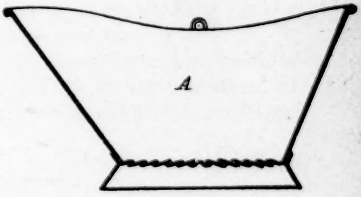


Fig. 4



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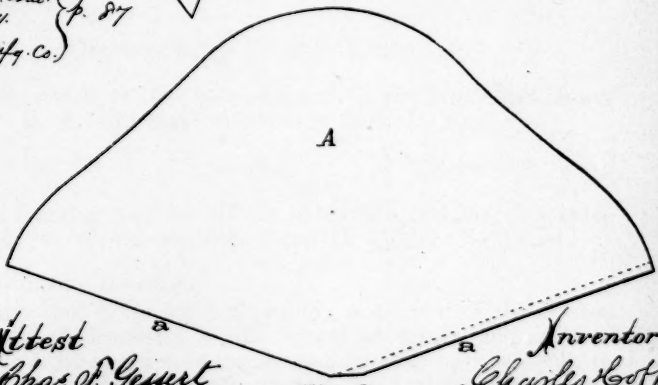
p. 87

Fig. 5



Attest
Chas F. Gessert
Jacob J Gessert

Inventor
Charles Hoff
By Geo. J. Murray
Atty

down flat, as shown in Fig. 4, thus completing the body of the hod. The base B, handle C, and bail D are attached in the usual manner.

It will be seen that the surplus metal is taken up in the bottom which in use sustains the most wear. The hod is therefore strengthened where strength is most needed. It will therefore last in use much longer than the common hod and can be produced at less expense.

I do not desire to limit myself to any particular form of crimp or fold for the bottom of the hod, nor to the exact shape of the blank shown in Fig. 5, for it is evident that the form of the fold may be changed and still have the tapered end of the blank, Fig. 3, compressed to force the surplus metal to fold over and strengthen the bottom, and also evident that the blank may be varied to suit different shapes of hods. I have selected one of the common forms to represent my invention. To change the blank to make a different form would be the work of a mechanic and require no invention.

It is also evident that my invention is applicable to buckets, scoops, and many other vessels made of sheet metal.

What I claim as new, and desire to secure by letters patent, is—

1. The method of forming the body of a coal-hod or other similar vessel, which consists, substantially, as before set forth, in first forming a cone-shaped body from a suitable blank, then folding in the cone end of said body in crimps to form the bottom.

2. As a new article of manufacture, a coal-hod formed of a single piece and having its bottom crimped or folded to form a series of annular ribs or rings of progressively-increasing diameter, substantially as shown and described.

CHARLES HOFF.

Witnesses:
JACOB J. GESSERT.
GEO. J. MURRAY.

91 UNITED STATES PATENT OFFICE.

HENRY S. REYNOLDS, of Brooklyn, assignor to the Iron Clad Manufacturing Company of New York, N. Y.

Coal-Hod.

Specification forming part of letters patent No. 304,033, dated August 26, 1884; application filed April 15, 1884. (No model.)

To all whom it may concern:

Be it known that I, Henry S. Reynolds, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful improvements in coal-hods, of which the following is a full, clear, and exact description.

This invention relates to improvements in coal-hods, pails, buckets, cans, and many other vessels of a similar character. The principal objects are to increase the strength and durability of the vessel

and decrease the cost of production. To accomplish these objects, I propose to partially form the bottom out of the metal forming the body, and to close the aperture and complete the bottom by a cap, all as hereinafter fully described and claimed.

To enable others skilled in the art to make and use my said invention, I will now proceed to describe the same by reference to the accompanying drawings, in which—

(Here follow diagrams marked pp. 89 & 90.)

Figure 1 is a diagram of a blank designed to form the body of a coal-hod. Fig. 2 is a side elevation of the blank formed up. Fig. 3 is an inverted perspective view of the formed-up blank after the first operation. Fig. 4 is a bottom plan view of the formed-up blank after the second operation. Fig. 5 is a similar view after the third operation. Fig. 6 is a perspective view of the completed coal-hod, a portion of the base or foot being shown broken away. Fig. 7 is a central vertical section of the lower part of a hod embodying my improvements. Fig. 8 is a side elevation of the bottom cap detached. Fig. 9 is a longitudinal vertical section of the same; and Fig. 10 is a similar section of said cap in process of upsetting, to secure it and the bottom together.

Similar letters of reference indicate corresponding parts in all the figures.

The blank A is cut out in the ordinary way, and is then formed up by bending its edges around and uniting them in any suitable manner to form the body B, the upper edge, *a*, of which is wired, as usual. The blank, as now formed up (see Fig. 2), is open at both ends, and the body B is ready for the succeeding operations to complete the article. As thus far described, the operations are those ordinarily followed in manufacturing coal-hods and similar vessels, and no particularity of description is necessary to those familiar with this art.

The next operation consists in placing the body B, Fig. 2, preferably in an inverted condition, in a stamping-press of the requisite power, and subjecting it to compression between dies of suitable shape to fold its lower edge (see the dotted line, Fig. 1) inwardly, and form a series of radial ribs, *b*, tapering toward the center. The result of this operation is shown by Fig. 3.

The next operation consists in placing the body B, Fig. 3, preferably in an inverted condition, in a press, and by the action of another set of dies flattening the ribs *b*, as shown by Fig. 4, and thereby partially forming the bottom of the vessel out of a portion and in one piece with the body, the walls of the ribs folding in upon the metal between them, and thus increasing the thickness of metal throughout a portion of the bottom, and consequently increasing the strength and capability of that portion of the bottom to resist strains in use.

To finish the bottom, I employ a cap, Fig. 8, having a recessed body, *c*, and a rim or side flange, *d*. This cap may be punched out of sheet metal, and stamped up in a manner common in working

89

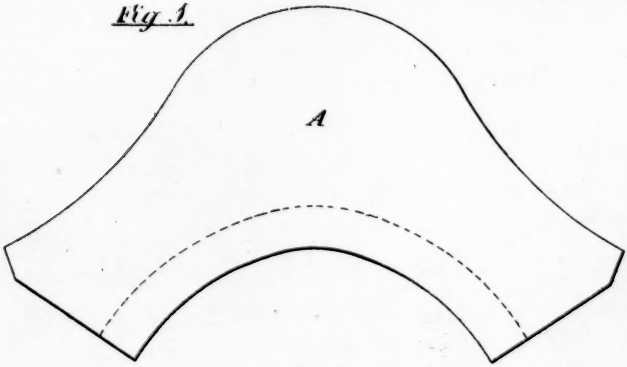
(No Model.) 2 Sheets—Sheet 1.

H. S. REYNOLDS.

COAL HOD.

No. 304,033. Patented Aug. 26, 1884.

Fig. 1.



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D. C. Mfg Co
p. 89

Fig. 2.

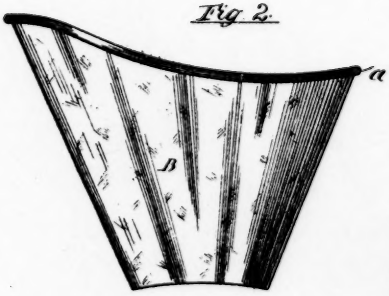
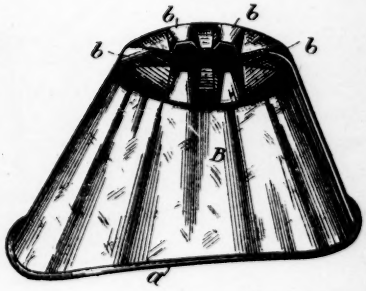


Fig. 3.



Witnesses:
George H. Bolte
Geo. S. Jewett

Inventor:
Henry S. Reynolds
By his Attorney
Ernest C. Bebb

sheet metal. It is inserted in place in the partially-completed bottom, the rim *d* resting upon the inside, and its body *c* projecting through the aperture, and then by the action of dies, or in any other suitable manner, is compressed until the side walls of the recessed body are spread outwardly, as indicated in Fig. 10, and thereafter by the continuation of the operation of upsetting or compression are flattened down, forming a rim or flange, *e*, closing the aperture, binding the ribs, and completing the bottom, as shown by Fig. 5, which illustrates the result of the last stamping operation. The customary base or foot C, handle D, and bail E are now attached, and the hod is complete and ready to be galvanized, which last operation tightly closes all seams.

In the drawings my improvements are shown only as ap-
92 plied to a coal-hod; but it is obvious that they are equally well applicable to many other vessels.

It is also obvious that a bottom made in the manner described will be very strong and durable, and well adapted to resist the strains incident to its use, and at the same time the cost of producing the finished vessel is considerably lessened, as the blanks to form the body and partially form the bottom can be cut from the sheets with very little waste, and the caps can be in many instances made up from "cuttings."

What I claim as my invention, and desire to secure by letters patent, is—

1. A coal-hod or other vessel having its bottom partially formed of radial ribs integral with the body and tapering toward the center, and flattened down to increase the thickness of metal, and completed by a cap having a recessed body, and a rim or side flange closing the aperture and binding the ribs, substantially as described.

2. A vessel comprising a sheet-metal body, B, having its lower edge crimped or folded inwardly, and a cap engaging said crimped edge, and flattened down inside and outside the same, to embrace it to form the bottom of the vessel, substantially as described.

In testimony whereof I have hereunto set my hand this 5th day of April, A. D. 1884.

HENRY S. REYNOLDS.

Witnesses:
ARTHUR C. WEBB.
ERNEST C. WEBB.

93 UNITED STATES PATENT OFFICE.

TIMOTHY J. POWERS, of New York, N. Y.

Improvement in Cartridge-Cases.

Specification forming part of Letters Patent No. 103,079, dated May 17, 1870.

To all whom it may concern:

Be it known that I, Timothy J. Powers, of the city of New York, in the county and State of New York, have invented certain new

and useful improvements in cartridges for breech-loading fire-arms, and in tools for making the same; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, viz:

(Here follows diagram marked p. 95.)

Figure 1 is a central sectional view of a mandrel having rolled on it a paper tube, designed to constitute the body of the cartridge-case. Fig. 2 is an end view of the same tube. Fig. 3 is a central sectional view of the same tube after one end has been partially closed by crimping and gathering in a portion over the end of a mandrel, the said end being designed to form the butt of the cartridge-case. Fig. 4 is an end view of such partially-closed end. Fig. 5 is a view similar to Fig. 3, there being placed within the tube and down in the partially-closed end a tightly-rolled coil of paper, designed to be pressed firmly into the butt, to contribute to forming and strengthening the butt of the case. Fig. 6 is an end view of Fig. 5. Fig. 7 is a central sectional view of the same tube after the butt has been formed by pressure within a suitable die, showing such die, and the punches used to form the butt, and make the necessary recess and aperture for the center priming, the flat punch in the base being the only part not in section. Fig. 8 is the base-end surface view of Fig. 7. Fig. 9 is a central sectional view of the case removed from the die shown in Fig. 7. Fig. 10 is an end surface view of the same. Fig. 11 is a similar view of the same, having the anvil on which the percussion-cap is to be exploded inserted in its place in the butt of the case. Fig. 12 is an end view of the same. Figs. 13 and 14 are, the one a sectional, and the other an end view of the same, with the percussion-cap, constituting the priming, inserted. Figs. 15 and 16 are, the one an end view and the other a sectional view, of the coil of paper designed for the butt of the case. Fig. 17 is a top end view of Fig. 7. Figs. 18 and 19 are, the one an edge and the other a side view of the anvil to be inserted in the butt of the case. Figs. 20 and 21 are two views, one sectional and the other an end view of the percussion-cap used.

The first part of my invention relates to formation of the entire body and butt of a cartridge-case—designed to be used in breech-loading fire-arms, and to be withdrawn from the breech after firing—of paper, in contradistinction to forming the same wholly or partly of metal.

The second part of my invention relates to the peculiar dies and punches hereinafter described for making said paper cartridge-case.

To enable others skilled in the art to make and use my invention, I will describe its mode of construction and operation.

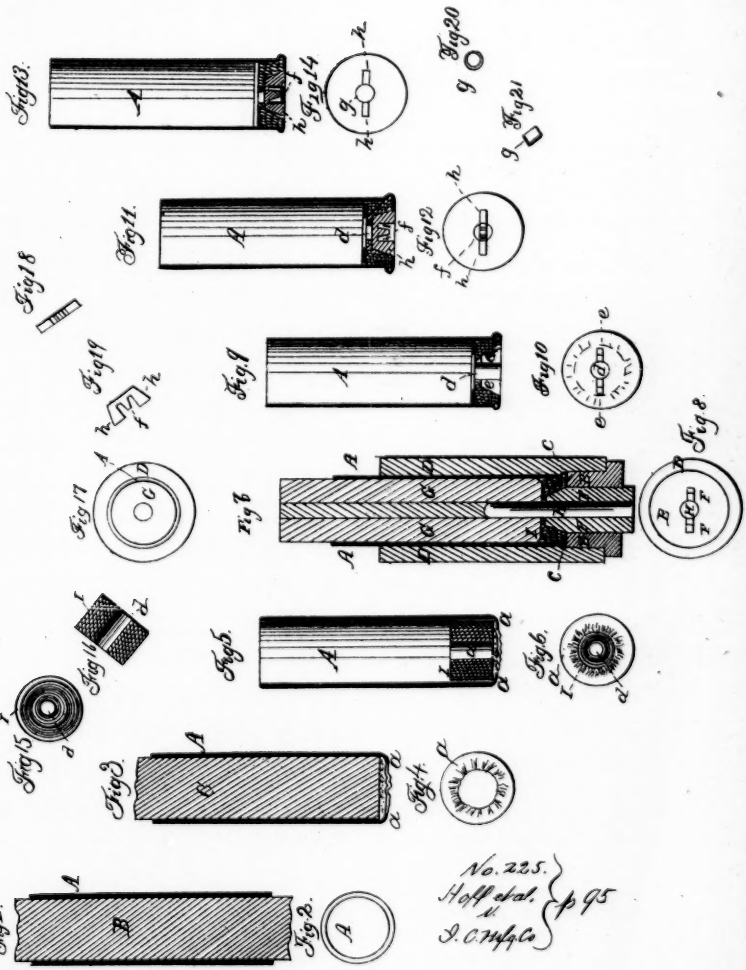
The same letters indicate similar parts in the several figures.

A is a paper tube made by rolling successive layers of thin, strong paper, having one side covered with glue, or some adhesive substance, around a mandrel, B, the tube having an external diam-

T. J. POWERS

Cartridge.

No. 103,079. Patented May 17, 1870



Witnesses
Tho. Mayhew
J. E. Bedrel

Inventor
Timothy J. Powers
By J. F. Tobin
his Atty

eter to fit the base of the gun for which the cartridge is intended, and being of suitable length to hold the charge of powder and ball, and firm the butt, as hereafter described. The tube, thus formed, is then placed on mandrel C, and the end A is turned and crimped sharply over the end of the mandrel, as shown. This operation may be performed by pushing the tube, with the mandrel, into a die having a conical bottom, and afterward into one having a square bottom, or it may be done in a lathe. A coil of paper, Fig. 15, is then made, it being rolled lightly about a small rod, so as to leave a hole through the center, and the layers of paper being stuck together with some suitable adhesive substance.

For an ordinary cartridge of, say, .58 caliber, this coil may be about half or five-eighths of an inch in length. It is placed in the tube A, down against the partially-closed end *a*, and the whole placed in the die D, Fig. 7, into which is fitted the movable bottom E, the two being so made as to form an annular recess at *c*. Through the center of the bottom E passes the punch F, F′, and H. This punch is formed of a round central portion, H, which has on each side a wing or flange, F F′, that is something less in thickness than the diameter of the center H—this thickness corresponding
94 to the thickness of the anvil intended to be used. The pressing-punch G is then forced down into the tube A, and pressure applied to it sufficient to consolidate it very completely with the coil of paper I and the tube. In doing so, the wall of the tube at *c* is forced out into a recess of the die at that point, forming a perfect annular projective base, which is filled on the inside with the paper of the roll I. The whole being made adhesive by glue, or some suitable material, is consolidated by the pressure into a strong, solid butt. In the meantime the punch F has made a recess or opening from the outer surface of the butt into the mass of the paper forming the base of the butt to the depth of half an inch, more or less, to receive the anvil, and the upper end H of the round portion of the punch F F′ has kept an aperture, *a*, open through the center of the butt. When the butt has been thus completed, the bottom E, with the punches E and F, is withdrawn, and the case is removed from the die D by being forced downward out of it.

As thus far completed it is represented by Figs. 9 and 10.

The anvil N, on which to explode the priming, is then to be made and inserted. This is cut by a suitable die and punch from sheet metal, and is shown in Figs. 18 and 19. The metal should be thick enough to give sufficient strength to the projection *f* to bear the blow of the hammer of the gun upon the cap without giving away. This anvil is forced into the recess *c*, and, if desired, it may be secured by glue, or some other adhesive substance. A percussion-cap, *g*, of a suitable size to fit snugly into the aperture *a*, is then inserted over the projection *f*, and the case is completed.

The projection *f* being somewhat thinner than the internal diameter of the percussion-cap, the fire from the exploded cap is readily communicated through the aperture *d* to the gunpowder in the case, while the cap *g*, fitting snugly in the outer end of said aperture, prevents the escape of gas when fired in a gun.

The advantages of cartridge-cases thus made are obvious. The butt is really much stronger, and less liable to rupture when fired, than the ordinary metallic cartridge-cases, and its cost is not more than one-third as much.

I have now described what I regard as one of the best forms and methods of constructing my new cartridge-case; but it is susceptible, of course, of a great variety of modifications without departing from the spirit of my invention.

I do not intend to limit myself to any particular method of constructing or arranging the priming, and do not claim that the method of priming described is new—any other method suitable for a paper base may be employed. The anvil, which I do not, for the purposes of this specification, regard as any part of the cartridge-case, may be made of any other material than metal; or it may be omitted altogether, and any other mode of priming adopted. Nor do I intend to confine myself to the particular method here described of filling in and supporting the base of the case. Any other equivalent material and method of applying it may be used. Neither is it essential that the butt should be made with an annular projecting base. Any other form may be given to the butt externally that may be desired. The annular projecting base, however, I deem the most appropriate for the purpose of conveniently removing the case from the gun after firing.

I am aware that paper tubes for the body of cartridge-cases are in common use, and I do not, of course, claim them as my invention. I am also aware that cartridge-cases have been made, or attempted to be made, for breech-loading fire-arms, wholly of a composition of matter, in which paper-pulp entered as an element, the case being made by pressing this composition directly in molds; and I therefore disclaim the making of cartridge-cases by pressing paper-pulp, or its equivalent, in molds as described in the forfeited application of Z. C. Warren, filed October 20, 1868. But I am not aware that the entire case of a cartridge, designed for a breech-loading fire-arm, intended to be removed from the gun after firing, has ever been attempted to be made entirely of fabricated paper.

I therefore claim as my invention and desire to secure by letters patent—

1. A cartridge-case designed for breech-loading fire-arms, when formed entirely of fabricated paper, and the butt filled in and strengthened, the whole substantially as herein specified.

2. The die D, with the movable bottom E, the punch F F′ H, and the pressing-punch G, when constructed, combined, and arranged, substantially as and for the purposes described.

TIMOTHY J. POWERS.

Witnesses:

J. EDWARD BEDELL.
J. P. FITCH.

T. J. POWERS, dec'd.
ANNA POWERS. Executrix.

96

Paper-Boxes.

No. 156,591. Patented Nov. 3, 1874.

Fig 1

Fig 2

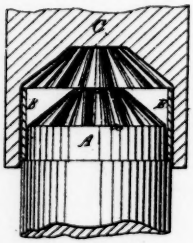


Fig 3

Fig 4

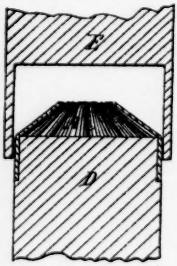


Fig 5

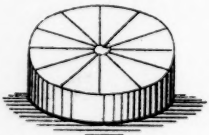
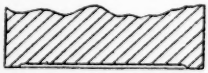


Fig 6



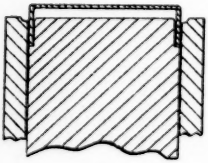


Fig 7

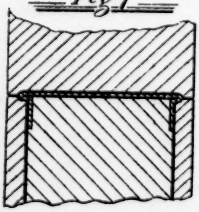


Fig 8

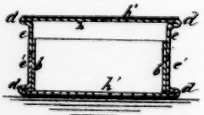
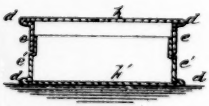


Fig 9



Witnesses.

B. F. Clark.

A. M. Edwards

No 225.
Hoff et al.
v.
D C Mfg Co.
} p 96.

Inventor.

Anna Powers
Administratrix of the Estate of
T. J. Powers - deceased.

96

74.

97 UNITED STATES PATENT OFFICE.

ANNA POWERS, of New York, N. Y., executrix of Timothy J. Powers, deceased.

Improvement in Paper Boxes.

Specification forming part of Letters Patent No. 156,591, dated November 3, 1874; application filed July 30, 1874.

To all whom it may concern:

Be it known that Timothy J. Powers, deceased, late of the city of New York, county and State of New York, did invent a paper box, the same being a new manufacture, of which the following is a specification:

This invention relates to pasteboard boxes, consisting of a body or base and cover, the latter shutting over or upon the former, the peculiarity of the box embodying the invention being, first, that the bodies and the bottom and top of the two parts, respectively, consist of a single piece of pasteboard, as hereinafter particularly described; and, second, that around the closed rim of one or both parts there is a projecting annular flange formed of such single piece of pasteboard.

Pasteboard boxes, of the class referred to, as commonly made, consist of a base and cover, each composed of a body formed of one piece of pasteboard, and a top or bottom, as the case may be, formed of a separate piece, attached in some way to the body, usually by gluing or pasting the two pieces together, and strengthening the connection by pasting thin paper over it; and in boxes that have an annular projection around the upper and lower edges. Such projection is formed by such separate top and bottom extending beyond the body, and leaving a sharp raw edge, unless covered by pasting on additional paper.

The box constituting the subject of this invention is formed of two parts, each of which is composed of a single piece of pasteboard, the same cylinder or tube that constitutes the sides or body being folded over and pressed down to form the top or bottom, as the case may be, and a projecting rim or flange is formed around the top or bottom, one or both, by folding outward the walls of the same cylinder or tube at the line where such projecting flange is desired.

(Here follows diagram marked p. 96.)

In the accompanying drawings there are shown both a box embodying this invention and the tools by which the same may be made.

The method of fabricating this new box, which has been found most convenient, is to take common paper, cover one side thinly with paste, and form it into a tube or cylinder having walls of sufficient thickness, by winding it around a mandrel of suitable size,

corresponding to the diameter of the box designed to be made. A side elevation of such a cylinder is seen at figure 1. This cylinder is then placed upon a die, shown in elevation at A, Fig. 2, having a shoulder to support the lower edge of the cylinder, shown in section, and the upper end above the line *a*, being made conical and grooved or fluted to match the die A, fits down over the latter. It is evident that when the die C is pressed down upon the paper cylinder, its upper portion above the line *a* will be folded inward and made to assume the form represented by Fig. 3. It is then transferred to another die, D, with a plane surface at the upper end, and also a shoulder to support the paper cylinder, as shown in section in Fig. 4. By pressing the upper plane-faced die E down upon the lower die D, the folding process will be completed, and, a severe pressure being applied, a smooth plane top will be formed, as shown in Fig. 5. Then, by pasting a disk of paper, *h'*, over the face of the closed end, both inside the box and out, the folds and the small aperture that may be left at the center will be entirely concealed. This constitutes one part, top or bottom, as the case may be, of the intended box. A similar closed cylinder is made for the other part of the box. The process or method of forming the projecting rim or flange *d* around the top and bottom of the box, shown in Figs. 8 and 9, is a well-known one, as practiced in forming the flanged-headed metallic cartridge-cases. The tools by which it may be performed are shown in Figs. 6 and 7; in the latter the said flange being represented as completed. Fig. 8 shows, in section, the completed box, a supplemental cylinder, *b*, being inserted in the usual way to form a neck for the cover. In place of using this supplemental cylinder, a neck may be formed on the base or bottom portion of the box, as represented in Fig. 9. The process and tools by which this neck may be formed do not differ from those usually employed in reducing the ends of metal tubes, as, for example, metallic cartridge-cases.

98 In folding down the wall of the cylinder to form the bottom or top, as above specified, it is recommended that the folds be carried inward, so that, after being subjected to pressure, whatever unevenness there is shall be on the inside of the box, leaving the outer surface smooth and plane. This result may be accomplished by a suitable construction of the folding-dies, the corrugations or spines on the face of the dies being made thin and short, and sufficiently prominent for the purpose.

In making paper cartridge-cases and shells, the end of the tube has been swaged or turned inward to partially close the said end, as set forth in the patent to T. J. Powers, May 17, 1870, No. 103,079.

The box thus formed may be labeled or ornamented, as desired.

A mode of proceeding and tools, whereby the box which is the subject of the present invention may be fabricated, are above described; but any other may be employed for the purpose which the manufacturer may find to be convenient.

It is not intended to make any claim here for the process or tools, as such, herein described—reserving for a separate application whatever patentable inventions there may be in such process and tools.

GEORGE SMITH. 99

Coal Scuttles.

No. 124,093. Patented Feb. 27, 1872.

Fig. 1.

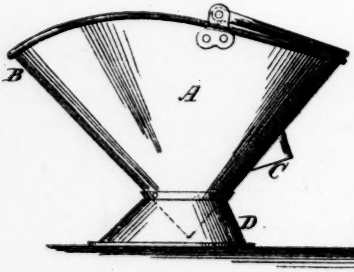


Fig. 2.

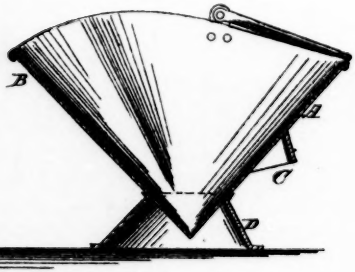
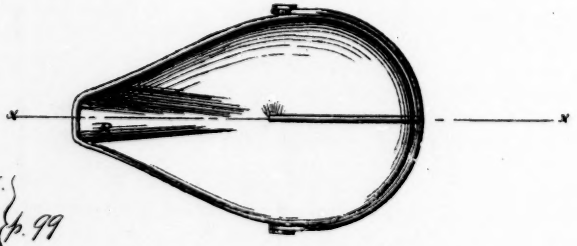


Fig. 3.



No. 225. Hoff et al. & Jc. Mfg. Co. } p. 99

Witnesses:
John Becker.
Geo. W. Mabee

Inventor:
G. Smith
Per
Attorneys.

What is claimed as the invention of Timothy J. Powers, and for which letters patent are desired, is—

As a new manufacture, a box, the two parts of which are severally composed of a single piece of pasteboard in the form of a hollow cylinder, closed at one end by the same being folded inward, and pressed without being cut, and covered with a disk of paper, as described.

ANNA POWERS,
Administratrix of the Estate of T. J. Powers, Deceased.

In presence of—
B. F. CLARK.
W. M. EDWARDS.

100 124,093.

UNITED STATES PATENT OFFICE.

GEORGE SMITH, of Williamsburg, New York.

Improvement in Coal-Scuttles.

Specification forming part of Letters Patent No. 124,093, dated February 27, 1872.

Specification describing a new and useful improvement in coal-hods, invented by George Smith, of Williamsburg, in the county of Kings and State of New York.

The object of this invention is to simplify and cheapen coal-hods or "scuttles," and at the same time render them more convenient for discharging the coal therefrom, more durable, and much easier repaired when injured by wear than coal-hods of ordinary construction; and it consists in the construction of the hod as hereinafter described.

In the accompanying drawing—

(Here follows diagram marked p. 99.)

Figure 1 is an outside view of my improved coal-hod. Fig. 2 is a vertical section taken on the line *x x* of Fig. 3. Fig. 3 is a top view.

Similar letters of reference indicate corresponding parts.

This coal-hod is made mainly of a single piece of sheet metal, and resembles in its outline an inverted hollow cone, the apex of the cone being the bottom and center of the hod. The ordinary horizontal bottom is consequently dispensed with. The top of the hod is contracted on one side to form a delivery-spout, and the bottom of this spout or the delivery-side of the hod stands at an angle of about forty-five degrees with a horizontal line. This gives a free and easy delivery of the coal when the hod is slightly tilted. A is the hod-vessel or inverted cone. B is the spout or discharge side of the hod. C is the tilting-handle on the back of the hod. D is the base, which is a truncated cone, oval in form, into which the body

A is fitted and fastened by rivets, as seen in Fig. 2. The bottom may form a point, as seen in the drawing, or nearly a point, with a plug in the center, as indicated in Fig. 1.

In the ordinary coal-hod the bottom is the first to fail and the most difficult to repair. When, from either wear or corrosion, my coal-hod fails, the process of repairing is very simple. A single piece of sheet metal is coiled, fitted, and fastened in the hod, and the work is done.

These hods can be made without stamping or other expensive machinery, by any ordinary workman, and at much less expense than any other hod in the market.

I do not confine myself to the precise form or arrangement of any of the parts described, as variations may be made without departing from my invention.

Having thus described my invention, I claim as new, and desire to secure by letters patent—

1. The coal-vessel A, constructed, substantially as shown and described, either in a single piece or with a plug or rivet in the center, substantially as shown and described.

2. The base D, in combination with the coal-vessel A, substantially as shown and described.

GEORGE SMITH.

Witnesses:
GEO. W. MABEE.
T. B. MOSHER.

102 UNITED STATES PATENT OFFICE.

EDWARD F. O'TOOLE, of St. Louis, Missouri.

Improvement in Coal-Hods.

Specification forming part of Letters Patent No. 191,071, dated May 22, 1877; application filed April 16, 1877.

To all whom it may concern:

Be it known that I, Edward F. O'Toole, a resident of St. Louis, Missouri, have made a new and useful improvement in coal-hods, of which the following is a full, clear, and exact description, reference being had to the annexed drawing, making part of this specification, in which—

(Here follows diagram marked p. 101.)

Figure 1 is a side elevation of a coal-hod exhibiting my improvement; Fig 2, a longitudinal vertical section of the same; Fig. 3, a cross vertical section, and Fig. 4 a plan.

Similar letters denote similar parts.

By means of the present improvement the cost of manufacturing a coal-hod is materially cheapened. The construction also is stronger than that of the ordinary hod.

In the drawing, A represents my improved hod. It is formed

E. F. O'TOOLE.

COAL-HOD.

No. 191,071. Patented May 22, 1877.

FIG. 1.

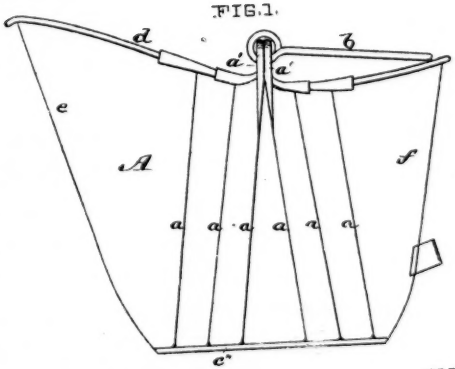


FIG. 2.

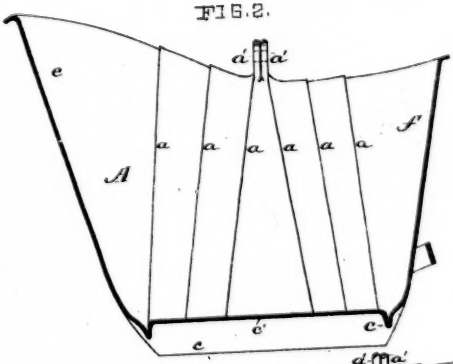


FIG. 3.

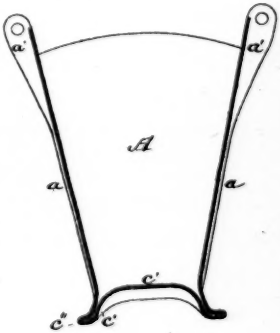
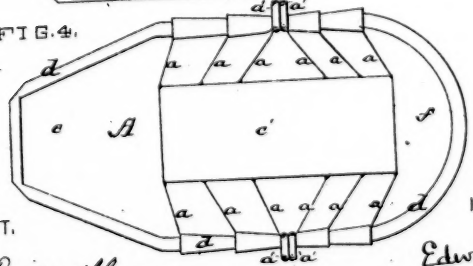


FIG. 4.



ATTEST.

Paul Bakewell
Thos. L. Snead.

INVENTOR

Edward F. O'Toole
by Chas. D. Moody
his atty.

No 225. Hoffedahl v. D.C.M.Co. } p. 101

from a single piece of sheet metal. A blank of suitable outline is brought under the action of stamping machinery, and by it forced into the shape substantially as shown. In doing this a series of crimps, *a a a*, are formed in both sides of the hod. The crimps begin at the bottom of the hod and widen toward its top. They may either stand out from the body of the hod, or (and as shown) be folded down thereupon. The two, *a' a'*, immediately at the center of the side of the hod are, at their upper ends, preferably turned outward to receive the bail *b*. The hod, by crimping it at *c*, may be formed with an elevated bottom, *c'*, as shown in Figs. 2 and 3, and, in place of the usual wire at the top of the hod, a flange, *d*, may be turned horizontally outward from the body.

The bottom *c'*, as indicated in Fig. 4, is of a rectangular outline. This enables the hod to be readily pressed into the desired shape. The nose *e* and rear portion *f* of the hod are of the usual form. The lower edge *c''* of the crimp *c* is preferably flattened laterally to furnish a better support.

Any desirable number of crimps or folds, *a a a*, can be formed in the sides of the hod, either one or two wide crimps or several narrower ones, as preferred.

I claim—

1. A coal-hod formed of a single piece of sheet metal, having the crimps *a a a*, substantially as described.

2. A coal-hod formed of a single piece of sheet metal, having the crimps *a a a* and *c*, substantially as described.

3. A coal-hod formed of a single piece of sheet metal, having the crimps *a a a* and rectangular bottom *c'*, substantially as described.

Witness my hand.

EDWARD F. O'TOOLE.

Witnesses:
CHAS. D. MOODY.
PAUL BAKEWELL.

103 At a stated term of the circuit court of the United States of America for the southern district of New York, in the second circuit, held at the United States court-rooms, in the city of New York, on Wednesday, the third day of March, in the year of our Lord one thousand eight hundred and eighty-six.

Present: The Honorable William J. Wallace, circuit judge.

CHARLES HOFF & *al.*
vs.
THE IRON CLAD MANUFACTURING COMPANY. } In Equity. Cal. Feb. Term, 1886.

The above cause coming on this day for final hearing upon pleadings and proofs—

Mr. George J. Murray is heard in behalf of complainants.

Mr. Arthur v. Briesen is heard in behalf of complainants.

Mr. Ernest C. Webb is heard in behalf of defendants.

C. A. V.

104 United States Circuit Court, Southern District of New York.

HOFF *et al.*
vs.
THE IRON CLAD MANUFACTURING COMPANY.

WALLACE, *J.*:

This suit is founded on letters patent No. 279,871, granted to Charles Hoff and Peter Renner, as assignees of Charles Hoff, June 19, 1883, for a coal-hod. The claims of the patent are as follows:

"1. The method of forming the body of a coal-hod or other similar vessel, which consists, substantially as before set forth, in first forming a cone-shaped body from a suitable blank, then folding in the cone end of said body in crimps, to form the bottom.

2. As a new article of manufacture, a coal-hod formed of a single piece, and having its bottom crimped or folded to form a series of annular ribs or rings of progressively increasing diameter, substantially as shown and described."

The patentee was the first to perceive the advantages of making a coal-hod in which the sides and bottom should be formed
105 out of one piece of metal in such manner that the bottom, while being integral with the sides, should at the same time be thicker and stronger than the sides in order to sustain the extra wear to which it is subjected in use.

He describes in his specification the mode of making such a coal-hod as consisting, first, in cutting a piece of sheet metal into a blank adapted to being bent around a cone-shaped former, bending the metal around the former and uniting its edges; secondly, in pressing the metal at the cone end of the structure into a series of crimps or folds, making a partially formed bottom; and, thirdly, in flattening the partially formed bottom to complete the hod. By this mode of making the hod the surplus metal taken up by the sides of the folds or crimps is utilized to increase the strength and thickness of the bottom.

The defendant is making a coal-hod such as is described in the patent granted to Henry S. Reynolds, August 26th, 1884. Reynolds was an employee for the defendant when a coal-hod made comformably with the complainants' patent was shown to him. He availed himself of that feature of the patent which consists in using the same piece of metal to form the sides and bottom, so that the bottom will be of an increased thickness of metal; but, in order to decrease the cost of production or to evade the patent, he concluded to form only a part of the bottom from the metal of
106 the sides, by folding in the sides and then closing the space between the folded ends with a cap.

He describes in his specification the cutting of the sheet metal into a suitable blank, the bending of the blank and uniting the metal at the edges, the compression of the bottom end of the structure between dies of suitable shape to form a series of radial ribs, and the flattening of the ribs by compression, "thereby partially forming the bottom of the vessel out of a portion and in one piece

with the body, the walls of the ribs folding in upon the metal between them, and thus increasing the thickness of metal throughout a portion of the bottom, and consequently increasing the strength," &c.

The second claim of his patent is as follows:

"2. A vessel comprising a sheet-metal body having its lower edge crimped or folded inwardly, and a cap engaging said crimped edge and flattened down inside and outside the same to embrace it, to form the bottom of the vessel, and substantially as described."

It may be that such a hod can be made at less expense than the hod of the complainant's patent, and, if so, that Reynolds made a patentable improvement; but he has taken Hoff's invention in essentials. He left out part of Hoff's bottom and substituted a cap for the rest.

Hoff, in the specification of his patent, expressly states that he does not desire to limit himself to any particular form of crimp or fold for the bottom of the hod. He also points out that the
107 form given to his structure before the cone end is flattened into a bottom may be changed and still have a tapered end, the metal of which may be compressed to fold over and strengthen the bottom. He was not limited to any narrower claim than the specification allows by the prior state of the art. Such a construction should be given to the first claim of his patent as will cover his real invention, and it therefore should not be limited to a method in which a perfect cone-shaped body is first made.

It is held that the defendant infringes the first claim of the complainant's patent. The second claim is not infringed. The defendant's hod does not have a bottom so crimped as to form a series of annular ribs or rings of progressively increasing diameter.

A decree is ordered accordingly.

George J. Murray and A. v. Briesen for the plaintiffs; Ernest C. Webb for the defendant.

(Endorsed:) United States circuit court, southern dist. of N. Y. Hoff *et al. vs.* The Iron Clad M'f'g Co. Opinion, Wallace, J. U. S. circuit court. Filed Apr. 12, 1886. Timothy Griffith, clerk.

108 U. S. Circuit Court, Southern District of New York.

CHAS. HOFF *et al.*
vs.
IRON CLAD M'F'G CO. } In Equity.

Please take notice that on the petition, with a copy of which you are herewith served, and on all the pleadings, proceedings, and papers in this cause, and on the affidavits, with copies of which you are herewith served, and the patents and devices therein referred to which are subject to inspection at my office, a motion will be made on behalf of the defendant before this honorable court, at the United States court-rooms in the city of New York, on the 24th day of April, 1886, at the opening of the court on that day, or as soon thereafter

as counsel can be heard, for an order that this cause may be reheard, as prayed for in said petition, and for such other and further relief as may be just.

Dated April 23rd, 1886.

Yours, &c., ERNEST C. WEBB,
Defendant's Solicitor.

To Geo. J. Murray, Esq., compl't's solicitor, or A. v. Briesen, Esq., of counsel for compl't.

109 Circuit Court of the United States, Southern District of New York.

CHARLES HOFF *et al.*
vs.
THE IRON CLAD MANUFACTURING COMPANY.

To the justices of the circuit court of the United States for the southern district of New York:

The Iron Clad Manufacturing Company, the defendants in the above-entitled suit, respectfully represent and state as follows:

I. This suit is one brought for alleged infringement of letters patent granted to Charles Hoff, number 299,871, dated June 19, 1883, for alleged improvement in coal-hods and similar vessels.

The bill of complaint herein was filed on the 11th day of August, 1884.

The answer herein was filed on or about the 6th day of October, 1884, and denied the validity of said letters patent and denied that the defendants had infringed the same.

Proofs were taken in said cause by both parties, and the said cause came on for hearing before this court (Mr. Justice Wallace presiding) on the 3d day of March, 1886, and was argued by coun-
110 sel, and thereafter, on the 12th day of April, 1886, a decision was rendered in this cause to the effect that the first claim of said letters patent was valid and had been infringed by the defendant, and that the second claim of said letters patent had not been infringed by this defendant.

II. That prior to filing the answer in said cause this defendant caused a search to be made in the Patent Office of the United States for any letters patent or publications bearing upon the validity of said letters patent of the complainant or the prior state of the art relating thereto, and also employed an expert to make search among foreign patents for the same matter, and, as it verily believes, exercised due diligence in regard to the search into the novelty of said letters patent and into the state of the art prior thereto.

That all the matters found by said searches were embodied and set forth in the answer of the defendant filed herein, and the defendant was unable at that time to ascertain any other matters or defences bearing upon the validity of said letters patent or proper construction thereof or the state of the art prior thereto.

III. That defendant understands that this court has decided that

the first claim of the letters patent of the complainant are broad enough to include the process of making a coal-hod or other conical-shaped vessel which consists of the two strips, to wit: (1) forming a body either in the shape of a perfect cone or in the shape of
111 the frustrum of a cone, of a suitable blank for either form, and (2) then folding the smaller part of that body into folds or crimps to form either a bottom or a partial bottom for the vessel irrespective of the question whether said folds or crimps are formed in a circumferential or annular direction or in a radial direction.

That the second claim was limited to a coal-hod of a single piece only and having its bottom crimped in a series of annular ribs of progressively increasing diameter, and that as the defendant did not form its coal-hods of a single piece and as it did not form their bottoms with annular ribs it did not infringe the same.

IV. That your petitioner, immediately upon said decision being rendered, directed a further search to be made in the United States Patent Office and a further search to be made for publications and among persons skilled in the art of making metal vessels for prior instances of metal vessels formed in the manner which it now understands the court has considered the first claim of the patent of the complainant covered, and that it has succeeded in finding a number of patents and instances of prior manufacture and sale of metal vessels which, as it respectfully submits to this court, clearly show and describe prior use of the process described in the first claim of the complainant's patent, if said claim is considered sufficiently broadly to include the defendant's structure.

V. That the names and dates of the patents so discovered
112 and the names and residences of the witnesses having prior knowledge of the use of the manufactures referred to are as follows:

Letters patent to C. Jones for funnel, dated December 12, 1865, No. 51515.

Letters patent to J. F. Kearns for improvement in tin-ware, dated Jan. 22, 1878, No. 199,370.

Letters patent to Joseph D. Clark and William Wells, of Perry, Iowa, for improvement in metallic baskets, dated November 11, 1879, No. 221,522.

Benjamin L. Watson, of Madison, New Jersey, doing business in New York city, New York.

VI. That none of said matters were known to this defendant prior to the hearing and decision of this court in this case, and were not ascertained notwithstanding the searches of the defendant to ascertain all matters bearing upon the validity and construction of said letters patent.

Your petitioners for proof of the matters contained in said petition respectfully refer to the affidavits annexed thereto.

Wherefore your petitioners pray that this cause may be reheard, and that a decision may be rendered dismissing the bill of complaint with costs.

And your petitioners will ever pray, etc.

IRON CLAD M'F'G CO.,
By ROBERT SEAMAN, *Treas.*

113–124 CITY, COUNTY, AND SOUTHERN DISTRICT OF NEW YORK, *ss:*

Robert Seaman, being duly sworn, says I am the treasurer of The Iron Clad Manufacturing Company, the defendant herein. I have read the foregoing petition and know the contents thereof, and the same is true of my own knowledge except as to the matters alleged to be stated on information and belief, and as to those matters I believe it to be true.

ROBERT SEAMAN.

Subscribed and sworn to before me this 22d day of April, 1886.

ARTHUR C. WEBB,
Notary Public (16), *N. Y. Co.*

[SEAL.]

We hereby certify that in our opinion the foregoing petition is proper to be heard.

Ap. 24, 1886.

FREDERIC H. BETTS,
ERNEST C. WEBB, *Counsel.*

* * * * * * *

125 United States Circuit Court, Southern District of New York.

CHARLES HOFF *et al.*
vs.
IRON CLAD MANUFACTURING CO. } In Equity.

Please take notice that on the petition and affidavits heretofore served and filed and on the supplemental petition, with a copy of which you are herewith served, and on the affidavits of Ernest C. Webb, William H. Finckel, Douglas Dyrenforth, Virgil D. Stockbridge, Robert G. Dyrenforth, Edward M. Farquhar, William C. McIntire, Marcellus Bailey, Geo. M. Finckel, E. Everett Ellis, and Henry L. Brevoort, with copies of which you are herewith served, and on the patents referred to in said petition, supplemental petition, and affidavits, which are on file and subject to your inspection in the clerk's office of this court, and on all the proceedings, proofs, and papers in this cause, a motion will be made on behalf of the defendant before this honorable court, at the United States court-rooms, in the city of New York, on the 14th day of May, 1886, at the opening of the court on that day, or as soon thereafter as counsel can be heard, for an order that this cause may be reheard, as prayed for in said petition and supplemental petition, and for such other and further relief as may be just.

126 Dated May 11th, 1886.

Yours, &c.,

ERNEST C. WEBB,
Defendant's Solicitor.

To George J. Murray, Esq., complainant's solicitor, or Arthur v. Briesen, Esq., of counsel for complainant.

127 United States Circuit Court, Southern District of New York.

CHARLES HOFF *et al.*
vs.
IRON CLAD MANUFACTURING CO. } In Equity.

The Supplementary Petition of the Defendant, The Iron Clad Manufacturing Company.

Your petitioner, The Iron Clad Manufacturing Company, respectfully shows that it has heretofore filed a petition for a rehearing herein.

That in and by said petition it has recited the proceedings in this cause.

Your petitioner, hereby reasserting and alleging all of the matters and things set forth in its said petition heretofore filed, does hereby, and as matters supplementary thereto, respectfully show that since the making of the foregoing petition there has come into its possession a copy of certain English letters patent, No. 3578, of 1875, granted to Geo. Hazeltine on the third day of November, 1873; that said letters patent were not in the possession of your petitioner and did not come to the knowledge of your petitioner in time to present the same to this court at the hearing on the petition heretofore filed, but only came into the possession of your peti-

128 tioner on the morning of the day when the said former petition was to be filed, and thereupon, in open court, your petitioner's counsel called the same to the attention of complainant's counsel and asked leave to present the same with the other matters and things mentioned in said former petition, or to postpone the hearing of said former petition until proper papers presenting the said new matter could be presented to said court; that thereupon the said complainant's counsel consented that the said patent might be presented and considered by the court without further papers.

Your petitioner further shows that, as it verily believes, it used due diligence in searching for all matters of defence in this suit prior to the filing of the answers herein, and caused searches to be made among both American and English patents for any matters of defence herein, as by reference to the affidavits filed with said former petition and as by reference to the affidavits annexed hereto will more fully appear; that your petitioner did not discover the said English patent No. 3578 prior to the filing of the answer herein nor prior to hearing of this cause herein nor until about the twenty-first day of April, 1886, but on said last-named day heard of said letters patent and ordered a copy of the same, but did not receive the same until the twenty-fourth day of April, 1886, and was unable prior to said day to submit the same to Mr. Frederic H. Betts, senior counsel for your petitioner, or to present the same to this court.

129 And your petitioner further shows and respectfully represents that said English patent No. 3578 is material to the issues in this cause and is sufficient, as your petitioner believes, to change the result heretofore announced herein and to establish the

issue contended for by your petitioner; that the coal-hods made by it and alleged by the complainant herein to be an infringement of the letters patent named in the bill of complaint herein are not an infringement, but that your petitioner's contention in said cause was correct and true, and that the said letters patent of complainant cannot be so construed as to cover and to include the process of manufacture of coal-hods as that practiced by your petitioner.

And your petitioner will ever pray, &c.

IRON CLAD M'F'G CO.
ROB'T SEAMAN, *Treas'r.*

CITY, COUNTY, AND SOUTHERN DISTRICT OF NEW YORK, *ss:*

Robert Seaman, being duly sworn, deposes and says that he is the treasurer of the defendant, The Iron Clad Manufacturing Company, in this action; that he has read the foregoing petition, and that the same is true of his own knowledge except as to the matters therein stated to be alleged on information and belief, and as to those matters he believes the same to be true.

ROB'T SEAMAN.

Sworn to before me this 11th day of May, 1886.

ARTHUR C. WEBB,
130–169 [SEAL.] *Notary Public* (161), *N. Y. Co.*

We hereby certify that in our opinion the foregoing petition is well founded in point of law and fact and proper to be heard.

FREDERIC H. BETTS,
ERNEST C. WEBB, *Counsel.*

* * * * * * *

170 HOFF
v.
IRON CLAD MANUFACTURING CO.

WALLACE, *J.:*

The application for a rehearing is granted upon condition of the payment by defendant of all of complainant's costs and taxable disbursements subsequent to the filing of the answer.

(Endorsed:) Hoff *v.* Iron Clad Man'f'g Co. Memorandum. U. S. circuit court. Filed Jun- 5, 1886. Timothy Griffith, clerk.

171 United States Circuit Court, Southern District of New York.

CHARLES HOFF and PETER RENNER
vs.
IRON CLAD MANUFACTURING COMPANY. } In Equity.

Testimony taken in behalf of complainant for a rehearing of this cause under and pursuant to the orders of this honorable court filed June 12, 1886, before David S. Oliver, Esq., notary public.

CINCINNATI, *November* 22, 1886—10 o'clock a. m.

Met pursuant to agreement, formal notice of examination being waived.

Present: Geo. J. Murray, Esq., of counsel for complainants; Ernest C. Webb, Esq., of counsel for defendants.

JAMES W. SEE, being first duly sworn, deposes and says as follows:

1. State your name, age, residence, and occupation.

James W. See; age, 37 years; residence, Hamilton, Ohio; am a consulting engineer.

2. Please state what experience you have had as a prac-
172 tical mechanic and as to examination of patents and patented inventions, and particularly what experience you have had in the construction of sheet-iron vessels.

At an early age I came into association from natural bent with mechanical men, books, and things. I entered a machine shop as an apprentice and worked several years at the bench in machine construction at different establishments, occupying, in the course of that time, about all of the executive positions in a manufacturing establishment. I then became draugtsman and finally designer in a larger concern engaged in the manufacture of metal-working machinery. I then engaged in office business as consulting engineer, in which capacity I have been and am still retained by a large number of prominent concerns of the country. It is my line of duty to investigate and pass upon the designs for new structures in the way of machinery or the products of machine manufacture in order to determine whether the proposed machine or product is fitted to the desired end; whether or not it is suited to the market; whether or not it infringes upon existing patents, and whether or not it contains itself new and patentable subject-matter. This inquiry into the patent side of such matters has formed of late the most important part of my business, and I have recognized its importance by a course in law reading, especially patent law. I have for quite a number of years acted as solicitor for inventors before the Patent Office, and have been quite frequently called as an expert witness in law cases involving mechanical matters. My opinion and judgment upon mechanical questions appears to be well thought of, and I judge this from the fact of the extent of my professional practice and also from the fact that extensive contributions which I have made to the technical press upon mechanical matters have been well received, and upon reprinting in book form have

been adopted as text books in technical educational institutions. As to my experience in working sheet metal it has been confined almost exclusively to the working of sheet iron in the manufacture of boilers, smoke-stacks, chimney connections, and things of that kind in connection with steam-engineering.

173 3. Have you read the opinion of Judge Wallace in this case, published in the Official Gazette of June 8, 1886, page 1230, and also the depositions of the witnesses Edward N. Peacock and Henry L. Brevoort in this case, and do you understand the same?

I have read these matters and believe I understand them.

4. I now hand you certified copy of complainants' patent, being numbered 279,871, granted to Charles Hoff and Peter Renner June 19, 1883, for a coal-hod; also printed copy of specifications and drawings of United States patent No. 99370, granted to Isaac T. Kearns for tinware; also printed copy of specifications of letters patent No. 22522, granted November 1, 1879, to J. D. Clark and U. Wells, for a metallic basket; also printed copy of specifications and drawings of letters patent No. 304,033, granted to defendants August 26, 1884, as assignee of Henry S. Reynolds, for coal-hod; also certified copy from bound volumes of Patent Office of specification and drawing in the matter of the English letters patent granted Geo. Haseltine November 3, 1873, No. 3578, for improvement in cylindrical boxes, cases, and so forth. Please state if you have read and understand the inventions described and shown in the several letters patent.

I have read the patents referred to and believe that I understand them.

5. Please compare the invention shown, described, and particularly referred to in first clause of claim in complainants' patent with the several devices shown and described in the exhibits above referred to.

Before making the comparison asked for I think it best to indicate, in a general way, the art and state of the art on which complainants' patent appears to me to be based. The patent relates to a coal-hod—to the construction of coal-hods. Coal-hods may be looked upon and spoken of as open metallic vessels with substantially flat bottoms. In putting bottoms in metallic vessels the most ordinary plan is to form the body complete and then secure to it a bottom formed of a separate piece of metal. An ordinary

174 tin pint cup will illustrate such a mode of construction. The objection to such construction lies in the weakness of the bottom, if the vessel be a large one, and in the expense involved in securing it to the body portion. In the construction of some kinds of tin vessels it is common to form the bottom portion and bottom of a single piece of metal. Dish-pans, milk-pans, and the like are often formed in this way. The mode of procedure is to cut out a circular disk of metal of the proper size, and then subject it to a drawing or stamped process in a press, which turns the edges upward to form the body of the pan. This process necessarily contracts the measure of the body metal, and the sides of the pan become covered

with crimps or wrinkles. These are removed by a subsequent smoothing operation. It should be noted that in this process of panforming the bottom has not been fabricated. On the contrary, the bottom is precisely as it was in the original piece of metal, and the fabricated process has had to do only with the sides of the pan. The process is an excellent one within certain limits, but there are serious objections to it. The first is that the sheet metal must be cut into complete circular disks from market iron, which comes in square sheets. The consequences is that one-fourth of the sheet metal becomes scrap metal, and a serious money charge is then placed against the completed article. Another objection is that this process of turning up the rim is only applicable to very shallow vessels, if made of iron. A coal-hod is a very deep vessel compared with its diameter, and it would hardly be possible to produce one of these by the rim-turning process which I have mentioned. If it were possible to construct a coal-hod by that process the high cost due to the loss in scrap metal would preclude production at a marketable price.

Another plan for securing bottoms in cylindrical metallic vessels has been sometimes employed. In this plan the metal for the cylindrical body has been left to project below the level of the proposed bottom. A bottom, formed of a separate piece, was then inserted at the desired level, and the projecting portion of the side metal has been turned inward in crimps or folds to hold the bottom in place. This process has been employed with cylindrical vessels, and the nature of the construction has been such that the in-turned portion had as much metal toward the center of the bottom as towards the circumference. Toward the center of the vessel is where the metal is least wanted and where it is hardest to dispose of by the crimping process. Furthermore, the in-turned metal, instead of being adapted to itself form the bottom of the vessel, was utilized only as the support for the bottom.

In some forms of vessels, where a flaring form was desired, such flaring form has been produced by crimping the sides of the vessel from the top downward. This gave a structure, but a rough one, owing to the pressure of the crimps in the side of the vessel, but it made no provision whatever for a bottom of the vessel except by the process of inserting a separate piece.

Referring now to the Hoff patent, it would appear that Mr. Hoff had conceived the idea of forming a flared vessel from a single piece of sheet metal bent to form the flaring sides of the vessel, being continued downward to form a cone-shaped bottom without straining, swaging, or crimping, and subsequently crimping the cone-shaped bottom into a flat form. This process, which appears to be an entirely novel one, permits the single piece of metal of which the coal-hod is formed being cut from square sheets of metal with very trifling loss of scrap, it being possible to so cut the pieces as that little scrap is produced. After the piece is cut to the right shape the entire vessel is formed in a preliminary manner by the simple act of rolling. This does not strain or stretch or crimp the metal in the least, but simply bends it and produces a complete cone-shaped vessel. The side seam is then made by the usual seaming process,

and the cone-shaped bottom is pressed down into crimps to give it a flat form. By reason of the cone form of the in-crimped bottom there is the least amount of metal where the least is wanted, and hence there is the least to dispose of in the process of crimping, and when the crimping is complete the metal is proportionately
176 disposed in the bottom and the crimps serve to brace and strengthen the flat bottom. If I were called upon to briefly define the Hoff system I would say that it consisted in first giving to the bottom a plain cone form by the act of bending and then crimping the cone-shaped bottom into flat form. This is substantially the language of Hoff's claim referred to in the question. In the specification Mr. Hoff seems particular in pointing out that he does not limit himself to any particular form of crimp by which the cone-shaped bottom is gotten into form.

Referring now to the Kearns patent, I would say that it appears to be for a pan made by the rim-drawing process I have described, in which the flat bottom finds itself already formed by reason of the pan being made from flat unbent metal. In the Kearns patent after the pan is done, so to speak, a circumferential crimp is put in the bottom to strengthen it and add to its durability, the crimping process giving it no form it did not possess before crimping, and the crimping process forms no part of the bottom-forming process. Furthermore, it strikes me as being a ridiculous, if not an impossible, sort of a thing. I think that after a flat-bottom pan is done it would be injured rather than improved by Kearns' crimp, owing to the extra strains and stretchings which the metal is subjected to in forming the crimp.

I very much question whether the thing could be made from any iron to be found in the market. It should be particularly noted that in the Hoff system of crimping the process, as applied to the conical bottom, is a process of contraction and condensation, there being no stretching of the metal to make it reach further than it ought to. The Kearns patent contains nothing whatever in the line of invention adopted by Hoff, the Kearns patent not indicating to any degree whatever the process of forming a crimped flat bottom by a preliminary process of rolling into uncrimped cone form.

Referring now to the Clark and Wells patent, it presents merely the aspect of a metallic basket given a flared form by crimping
177 the side metal from the top downward. The bottom of the basket is an ordinary one, being an inserted separate flat piece. The patent presents nothing in the line of the Hoff invention, the bottom not being a fabricated one; or, to speak otherwise, its form is not changed in the process of manufacture. It is not formed of a bottom prolongation of the side metal; it is not formed by an intermediate cone-rolling process, and it is not flattened by crimping process.

Referring now to English patent 3578, of 1873, I find it relates entirely to cylindrical vessels whose projecting side metal is crimped to support the bottom, which is secured to such in-turned portions by paste or otherwise. I should gather from the patent that paper is the material employed, as paste is the only means referred to for

securing the bottom. The patent sets forth nothing in the line of Hoff's invention, as there is no crimped bottom formed by the preliminary process of cone-rolling. Furthermore, in the English patent there is as much material at the center of the crimped part as there is at its circumference, a condition which is avoided by the Hoff method.

Referring to the Reynolds patent, No. 304,033, I find it sets forth a coal-hod constructed upon the method set forth by Hoff. A blank is cut from sheet metal, rolled into cone form, and the cone-form bottom flattened by crimping. In the Reynolds device the center of the bottom is patched out by a center piece, joined to the rest of the bottom by a circular seam or crimp. The patent or claim relates, as I understand it, to the addition of this patch to the bottom formed by the Hoff process. The device of the Reynolds patent appears to embody completely the process set forth and claimed in the Hoff process.

Two coal-hods are produced, one of complainants' manufacture and one of defendants' manufacture, and it is admitted by counsel that these hods are respectively of the same construction as those heretofore produced and marked "Complainants' Exhibit Hoff Hod" and "Complainants' Exhibit Iron Clad Hod."

178 6. Please examine the two coal-hods produced and state if the same embody respectively the inventions of complainants' patent and defendants' patent, and you may state if this has in any way changed or modified the opinion you have previously expressed.

I have examined the two coal-hods referred to. Both of them appear to have been constructed by the method of the Hoff patent—that is to say, conical bottoms were produced by plain rolling and these conical bottoms were got into flat form by crimping. One of the hods has the central or focal patch set forth in the Reynolds patent; the other has not. The hods are exponents of the patents, and my opinion of them is not at all modified by viewing the structures.

7. I now hand you certified copy from the Patent Office of file wrapper and contents and drawings in the matter of the abandoned application of Timothy J. Powers, filed August 19, 1873, for improvement in boxes and tools for constructing the same. Please state if you have examined and understand the alleged inventions therein shown and described.

(Objected to as incompetent and immaterial and not properly responsive to any testimony introduced by the defendant.)

I have examined the copy of the abandoned case referred to, and I believe I understand the matter set forth in it.

8. Please compare said abandoned application of Timothy J. Powers with the English patent to Haseltine, before referred to, and state whether or not the said abandoned application shows or describes any other or different device or devices or constructions from those shown in said Haseltine English patent, and point out the

difference, if any, between the devices shown and described in each of said exhibits.

(Same objections.)

Without making a word-for-word comparison of the English patent and the abandoned patent, but judging from a general but close comparison, I would say that they were substantially identical. The abandoned file, however, contains much matter not found in
179 the English patent, such, for instance, as the Patent Office letters of rejection, the amendments, and the arguments filed during the pendency of the case. In some of these argumentative communications I find definite language, which might, perhaps, if needed, serve in further describing the devices and procedure. For instance, I find that the claims were rejected upon certain previous patents, and that applicant, by his attorney, in a communication to the Patent Office dated February 4, 1874, says: "None of the cases referred to for working metals are analogous to the subject-matter claimed by Powers, since the principles and methods of working in metals do not suggest processes in shaping materials of paper. It is evidently not obvious that what will be effectual and practical in working metals which have properties of tenacity, ductility, malleability, and plasticity will be applicable to dry paper or pasteboard having little elasticity, tenacity, plasticity, and malleability."

This simply shows that the devices and processes were contemplated only in connection with the fabrication of paper articles. Neither the English patent nor the abandoned application for the United States patent appears to me to have much bearing upon the Hoff patent, as the process does not foreshadow the Hoff process of forming a flat bottom from a preliminarily cone-shaped bottom. They do, however, appear to point out the employment of a patch for covering any central aperture in the bottom, as in the case of the Reynolds device, as shown in his patent and defendant's coal-bucket.

9. Referring to process described in the first claim of the Hoff patent, does it or not, in your opinion, make any difference whether the cone-shaped body referred to in said Hoff patent is a perfect cone or the frustrum of a cone, as shown in the Reynolds patent, from which the Reynolds hod was produced, so far as practicing the process of the Hoff patent is concerned?

I feel quite confident that it makes no difference whatever. A thing is cone-shaped whether it be a complete cone or the frustrum of a cone, and it would seem as if the Hoff patent was pur-
180 posely intended to remove any doubt upon this point, for in several places in the specification I find it stated that the structure before crimping is to be "cone or funnel shaped." A funnel is always the frustrum of a cone. Again, the specification states that the form of the blank from which the hod is made may be changed and still have the tapered end of the blank crimped in, etc.

10. In view of the state of the art as shown by the exhibit you have been referring to, would you or not say, as a practical mechanic, that the specification of the Hoff patent, with the drawings thereof,

would enable a mechanic skilled in the art to produce either the Hoff hod or the Reynolds hod without invention?

(Objected to as incompetent.)

I should unhesitatingly say that the Hoff patent was so perfect and complete in its descriptive matter as to enable any mechanic skilled in the art to carry out the Hoff invention and produce a coal-hod having a flat bottom formed by crimping a preliminarily cone-shaped bottom, and this without the exercise of further invention. The skilled mechanic seeking to carry out the Hoff process would have before him Hoff's demonstration of the process as embodied in his patent. He would be aware of the fact that there are different kinds of crimps employed in sheet-metal working, and he could select radial or circular crimps as well-known equivalents of each other. He would know that central or focal apertures in bottoms had been closed by patches. In my opinion, after reading the Hoff patent and being made aware of the new process first set forth by Hoff, the mechanic skilled in the art could produce a hod by the Hoff process and embody it in either of the demonstrated forms set forth in the Hoff or Reynolds patent or in either of the two coal-hods produced as exhibits, and this without the exercise of further invention.

11. In your opinion as a mechanic does either of the patents to which you have been referred prior in date to the Hoff patent suggest the invention shown and described and particularly referred to in said first claim of the Hoff patent?

181 None of those prior patents do, in my opinion, suggest in any degree the Hoff invention. On the contrary, I am of the opinion that the prior patents suggest modes of procedure which, if followed, would lead away from the Hoff invention.

(Complainants here offer in evidence one end of the old zinc cylinder, which is admitted by counsel to be substantially the same as exhibit heretofore introduced as old zinc cylinder on behalf of defendants, and marked "head of old zinc cylinder.")

12. Please examine "head of old zinc cylinder" now shown you, and state whether or not, in your opinion, the same would suggest to any skilled mechanic the invention embodied either in the Hoff or Reynolds hod or in Hoff's patent.

(Objected to because the proofs on this branch of the case have been closed, and, further, as not responsive to any testimony introduced on behalf of the defendant in this rehearing.)

The "head of old zinc cylinder" would not, in my opinion, suggest anything whatever in the line of Hoff's invention. Hoff's invention could not be carried out at all by following the plan of construction involved in the "head of old zinc cylinder." Not only this, but I can say further that Hoff's inventton could not be utilized in connection with these zinc cylinders. These cylinders simply illustrate one of the well-known methods to which I have referred of securing a separate bottom in cylindrical vessels.

Cross-examination:

X 13. Have you read all the testimony in this case?

I am not sure that I have read all the testimony as to facts. I have read most of it, however, and probably all.

X 14. Have you read the deposition of Ferdinand Dieckman, the expert witness originally called by complainants?

I think so, without being sure as to witness' name. By referring to the printed record I find I have read this testimony.

182 X 15. Please look at a copy of defendants' record prior to the rehearing, and state how much of the testimony therein contained you have read.

I think I have read it all with the exception of such portions as refer directly to facts and dates. I will state, however, that I did not read it with care and consideration.

X 16. In your answer to question five you speak of dish-pans, milk-pans, and the like made by what you term the "rim-turning process." Articles produced in this way are known in the trade as stamped ware, are they not?

Yes, sir; stamped ware or struck-up ware.

X 17. Are you quite positive that in the production of stamped ware there is a loss of twenty-five per cent. in waste or scrap?

I would not state it that way. What I have stated is that the sheet metal comes in square or rectangular sheets, and that in cutting large circular disks from such sheets there is a loss of about twenty-five per cent. in scrap. This scrap in many cases is utilized in some other line of manufacture, and the ultimate scrap has a market price, but a very low one. When I say twenty-five per cent. I mean in that neighborhood. If you want to cut a circle having an area of seventy-eight square inches, or, in other words, a ten-inch circle, you will destroy a piece of metal containing one hundred square inches or ten inches square. Further than that, in making pans by the stamp process referred to there is another element of waste. The metal in the body becomes crimped up and condensed, and you do not get the benefit of its full area. There is, therefore, more metal in the body than is necessary, and the crimping does not materially add to the strength of the structure. The bottom is the weak part.

X 18. Do you not know, as a matter of fact, that the stamping process is the cheapest known process of producing dish-pans, milk-pans, sauce-pans, and a large variety of similar articles?

For shallow pans the circular blank for the complete article must be employed, and serious waste by scrap cannot be avoided. In deep vessels, within the limit of depth permissible in the stamping process, the entire pan may be made of one large piece by

183 the stamping process, or the body may be seamed up of smaller pieces and attached to the bottom. For such deep pans the stamping-up process is much the cheapest if the enormous amount of scrap produced can be properly utilized in making smaller articles of tinware. If this scrap cannot be utilized the stamping process would not be commercially practicable in connection with deep pans like dish-pans. Furthermore, the tinware

trade involves many small articles which can be made from tin scrap, but I know of no profitable market for small sheet-iron scrap if the iron is thin.

X 19. By what other process or method of manufacture can the articles enumerated in the last question be produced at less cost than by the stamping process?

If you charge all the scrap produced against the finished article I think it will be found considerably cheaper to make the bottom of a deep pan of one piece and the sides of several pieces seamed together. The fruit-can trade involves the finest possible questions of economy, and it has been found that true economy consists in forming the sides of square pieces bent to a cylindrical form and joined to a bottom piece.

X 20. Do you understand that Mr. Hoff was the first to form a cone-shaped body for a sheet-metal vessel, such as a coal-hod, for instance?

As a preliminary step in the formation of a flat bottom, yes.

X 21. But a cone-shaped body for a sheet-metal vessel had been made long prior to the date of the Hoff patent, had it not?

Certainly; it was very common.

X 22. That is also true of a funnel-shaped body, is it not?

Certainly; I understand the two terms to be identical in the connection in which you have used them.

X 23. Then the new feature of the first claim of the Hoff patent is freely described by the words "then folding in the cone end of said body in crimps to form the bottom"?

184 I do not so understand it. I understand the new feature or invention of Mr. Hoff to consist of a process involving a series of successive steps contemplatively applied toward an ultimate end. This "felding in" is simply one of the steps in the complete process.

X 24. But the other steps in that process are all old, are they not?

The other steps of that process, viewed as a process, appear to be all new.

X 25. What are the other steps?

Forming a cone-shaped body from a suitable blank.

X 26. Considered apart from the whole process, is that new?

Considered apart from the whole process to which that step is to be intelligently applied, I do not think it is new.

X 27. Is the first claim of the Hoff patent limited, in your opinion, to a vessel having a flared or flaring cone-shaped body?

I think it is limited to a body having a cone shape at such portion of its base as is to form the flat bottom. I do not think the invention would be departed from by forming the topmost portions of the vessel into any shape that fancy or judgment might dictate.

X 28. Is it limited, in your opinion, to a body formed of a single piece of metal?

No, sir; I think the flat blank, if formed of two or more pieces seamed together in the usual manner, would come within the scope of invention, in view of the fact that it is common in the art to

form a large piece of several small pieces when a large blank is wanted.

X 29. If formed of two pieces seamed together the body of the vessel would have two vertical seams opposite each other, would it not?

It might, or the seam might run around the body, according to how the piecing might be determined upon.

X 30. Do you understand from the Kearns patent that the crimp is to be formed after the pan is formed or during the forming of the pan?

185 Either; but in any case it is done after formation of the bottom, for the bottom is completed in the rolling mill. Kearns' crimp is an addition to a complete flat bottom.

X 31. Is the first claim in the Hoff patent limited, in your opinion, to forming the entire bottom by crimping in the metal at the sides?

No, sir.

X 32. When a separate piece is employed, like that in defendants' hod, how far must the crimped-in portions of the sides extend in order to come within the first claim of the Hoff patent?

I should be of the opinion that any projection resulting from the successive steps of the process indicated would probably come within the scope of said claim. I would be especially confident if such in-turned portions thus formed became the bottom of the vessel, either in whole or in part, as distinguished from being mere supports of the real bottom of the vessel. I would limit the claim in view of the process, which is a bottom-forming process. I would say that if the process should not go to form a part of the bottom it is not the process of the claim, and that if the process left a center hole the center hole was to be stopped up with the usual central patch.

X 33. Suppose, in a hod of defendants' construction, that, after the crimping operation, the hole in the bottom was so large that it required a piece of metal to close it twice the size of the piece of metal or cap in the bottom of the hod you have examined, would such a hod be within the scope of the first claim of Hoff's patent, in your opinion?

If the in-turned bottom portion was produced from a rolled cone, followed by crimping, it would undoubtedly be within the scope of the Hoff patent.

X 24. Suppose that the hod was made by the process described in Reynolds' patent, but the crimped portion only extended in an inch, and the opening was closed by a cap, as described in the

186 Reynolds' patent, would this vessel be within the scope of the first claim of the Hoff patent, in your opinion?

The only process pertinent to this question that I find set forth in Reynolds' patent is the Hoff process of giving the bottom a preliminary cone form and then crimping it. If these two processes are combined in producing such a structure as you have described I think the operation would most certainly come within the scope of the Hoff process, though it would not be the most admirable exponent of the process.

X 35. If it were old to form the bottom or partially form the bottom of the cylindrical vessel by crimping or folding in the material of the sides, and then compressing or flattening the folded-in portions, would it require invention, in your opinion, to form or partially form the bottom of a tapering or conical vessel by crimping or folding in the material at the smaller end and then compressing and flattening the folded in portions?

When the process is so executed that the forming of the body is a step in the direction of forming an inwardly projecting bottom portion, and this step is followed by the crimping of such already inwardly projecting portion, there is, in my opinion, invention involved over a process in which the body forming becomes no element in the direct formation of an in-turned bottom portion.

X 36. Then it requires invention, does it, to form a cone or funnel-shaped body preliminary to the crimping operation, and it does not require invention to form a cylindrical body preliminary to the crimping operation?

You refer, I suppose, to the time at which the Hoff invention was made. What state of the art are you assuming as the basis of the question?

X 37. Question repeated.

(Objected to as indefinite.)

Your question appears vague to me, but I will attempt to answer what I think may have been intended by it. A cylindrical body involves no invention, and I do not know that it ever did.
187 Such a body carries with it no premonition of a bottom. The same may be said of a conical body. Either of these bodies might have bottoms inserted in various ways. To turn the bottom edges of the cylindrical body inward to form a part of the bottom, the entire inward tendency being produced by the crimping process, would certainly not now involve invention, but, in my opinion, at the time of Hoff's invention there was invention involved in producing a flat bottom by giving to the bottom a preliminary cone-form projecting outwardly and upwardly to form a body, and subsequently flattening the bottom there formed by a crimping process.

Adjourned to 10 o'clock Tuesday, November 23, 1886.

Met pursuant to adjournment.
Present: Same parties.

Witness continued his deposition:

X 38. You admit, do you not, that long prior to Hoff it was common to form cylindrical bodies for cans and other articles from sheet metal?

Most certainly. That was a common practice.

X 39. And you admit, do you not, that long prior to Hoff it was common to form a coal-hod body in the shape of a frustrum of a cone?

Such has always been the practice, I think.

X 40. Now, take these two—the old cylindrical body and the old

conical body—and state whether or not, in your opinion, it would require invention to form or partially form the bottom of the conical vessel by crimping or folding-in the material at its smallest end and then flattening the folded in portions, provided precisely the same method of forming the bottom by crimping and flattening had previously been practiced in the cylindrical vessel?

(Objected to as incompetent because misleading and the facts stated in the question did not exist at the date of Hoff's invention.)

In my opinion, under the circumstances mentioned in your question, as I understand it, there would be invention in the
188 method of forming the body of a vessel by first forming a cone-shaped body from a suitable blank, then folding in the cone end of said body.

X 41. What difference would there be in the method or process of crimping in the cases supposed in the 40th X question?

The methods would be entirely different, the crimping in one case being done upon metal projecting axially and in the other case upon metal projecting focally. In the latter case the metal has already been arranged upon the road toward flattening, and the crimping is done by downward motions only. Let me illustrate more fully. Take two vessels—one cylindrical, one conical—both with portions projecting beyond the level of the intended bottom; clamp the two vessels in presses ready for the bottom-forming operation; smash the projecting portion of the conical vessel directly downward, and this simple downward smashing act completes the flat bottom, which was previously partially formed in the act of producing the cone-shaped body; smash the projecting portion of the cylindrical vessel by the same simple downward act, and you have nothing in the way of bottom; you have simply spoiled your cylindrical vessel and ruined it beyond all hope. Part of the smashed metal has moved inward and part of it outward, and the thing is a total wreck.

X 42. Have you ever practiced what you call the Hoff process of crimping on a cylindrical vessel?

I have not spoken of the Hoff process of crimping. I do not think there is such a process. If you refer to the crimping step of the Hoff complete process I will say that step, as involved in his process, cannot be employed on a cylindrical vessel. If you ask me if I have ever smashed downward upon the end metal of cylindrical vessels I answer yes, frequently, and know exactly what becomes of the metal, and it is precisely as I have stated in my previous answer.

X 43. Can the process of crimping in radially, as practiced by the defendant in the manufacture of coal-hods like the one you
189 have examined, be practically employed in crimping in the end of a cylindrical vessel whose sides are parallel?

If in the smashing process it be desired to lay the folds of the metal symmetrically, and for that purpose the smashing dies be provided with radial ribs, these radial ribs would produce the radial flutes of the defendants' hod if brought directly downward squarely upon focally arranged metal. If such flat-faced radial ribs were

brought directly downward upon cylindrically arranged metal the effect would be to more hopelessly mutilate such projecting metal and entirely destroy the utility as bottom-forming material. In working on cylindrical metal, coning dies must be used to start the metal inward. In the Hoff process the inward start of the metal is given before the crimping or smashing is begun.

X 44. In answering cross-question 41 did you assume that the dies to be used in each case would be identically the same in shape?

In answering the question referred to I assumed similar dies acting upon dissimilar vessel bodies.

X 45. Would not an ordinary mechanic know that there would have to be a difference in the angle of the radial ribs on the dies used for a cylindrical body as compared with those used for a tapering body?

I think that the skilled mechanic, after reading the Hoff patent, would readily see that the new process could be carried out by dies totally inapplicable in connection with cylindrical vessels.

Question repeated.

(Objected to as fully answered, and the further reason that the state of the art does not disclose, prior to the Hoff invention, the process disclosed in his patent.)

By Mr. WEBB: What the state of the art discloses will be discussed at the proper time. The questions referred to do not mention the Hoff process, but assume certain things which are clearly stated, and the witness is intelligent enough to understand them. The last answer is evasive and the question is therefore repeated.

If you refer to a time prior to the Hoff invention, I answer
190 that the skilled mechanic would not know about this matter. In my opinion, the skilled mechanic at that early time would actually have coned the dies more for the conical vessel than for the cylindrical vessel. In other words, if he was led to the shape of his dies by the shape of his vessel he would be proceeding in a course directly opposite to the course now seen to be the correct one.

X 47. Answer the question, supposing it to refer to a date subsequent to the Hoff patent.

(Objected to as immaterial and irrelevant, because the infringing device is not constructed as implied in the question.)

The skilled mechanic, after being enlightened by the Hoff patent, would find that a new process was before him, capable of being executed in a manner and by appliances not available in connection with cylindrical vessels. While he might execute the new process by the old appliances he would see that similar appliances and better processes had been available.

(Answer objected to as evasive and irresponsive.)

X 48. Can the bottom of a cylindrical vessel be formed by crimping or folding in the material of the parallel sides at one end in radial folds, and these folds be compressed to form a flat bottom,

and the central aperture closed by a piece of metal as shown in defendants' hod?

There would be difficulty in disposing of the excessive surplus metal, but I feel satisfied that a bottom could be formed in the manner suggested.

X 49. What is the new result achieved by crimping or folding in radially the lower parts of a circular structure whose sides converge as compared with crimping or folding in radially the lower parts of a structure whose sides are parallel? And I ask you to bear in mind that this question relates to the result achieved in each case by the crimping operation.

In the cylindrical vessel all portions of the metal turned in by the crimping measure the same and the inner portions of the completed bottom require that we shall dispose of the same amount of
191 metal as found at the outer portions. In the conical form of the vessel the amount of metal to be disposed of in the bottom of the vessel by the crimping act lessens toward the center of the bottom. In cylindrical vessels the projecting metal to be crimped presents itself directly edgewise to crimping dies moving toward the bottom. In conical vessels the metal presents itself to the dies angularly. In cylindrical vessels the metal to be crimped must first of all be started inward. In conical vessels the metal to be crimped presents itself already inwardly. In cylindrical vessels the crimping operation must focalize the metal as well as flatten it. In conical vessels the flattening dies find the metal already disposed focally. In cylindrical vessels the vessel while being crimped must be perfectly clamped to the lower die to prevent the upsetting of the other end of the cylinder, which would otherwise be subjected to the compressive strain due to the crimping. In conical vessels the lower die, acting upward within the cone, imposes only tensional strains on the metal. No damaging compression acts upon the lower edge of the metal.

X 50. Does not the Haseltine English patent describe a process which consists in first crimping the end of a cylindrical body into vertical crimps (which crimping operation forces the material inward toward the center), and the compressing or flattening the crimps to form a partial bottom to the cylindrical body?

You are correct; the body is cylindrical and the material is started inward preliminary to the crimping.

X 51. Does not the Haseltine patent refer specifically to cans?

It does mention cans, but I am not able to say positively whether or not a metallic can is meant. The term occurs only in the preamble, and I judge from the entire patent that paper is the material to be employed. I judge this from the fact that paste is used in making junctures, and also from the fact that this Haseltine English patent appears to have been granted for the invention made by the man Powers, who filed the abandoned United States applica-
192 cation, in which he states, by way of argument, that the invention is not analogous to metal-working systems cited against it, which do not suggest success in shaping materials of paper.

(All reference to the Powers abandoned application objected to as incompetent and immaterial.)

X 52. Are not cans usually understood to be sheet-metal structures?

The women apply the term to tin or glass receptacles. Your question and my reply brings up a doubt, and I have gone to Webster, where I find the word defined: "A cup or vessel for liquors, in modern times made of metal." I do not like to criticise Webster, but the definition is certainly not a good one as regards what can is for, and I think a definition should also recognize the glass fruit can of the women folks.

X 53. Does not the Haseltine English patent specifically state that any suitable material may be used?

It does, but I fail to find any mention specifically of any material used in the operation other than paste.

X 54. Do you not find terms in the description which are ordinarily employed in connection with sheet-metal working?

Nothing especially indicative of sheet-metal working. I find terms applicable to metal working, but not calculated in any degree to throw light on the material employed, for the reason that such terms as are used are not exclusive, and for the further reason that in describing novel processes it is common to borrow terms from the most analogous art.

X 55. Assuming that the Haseltine patent describes and illustrates a cylindrical metal vessel having its bottom partially formed by crimping or folding in the material at one end into vertical crimps, which are subsequently compressed to form a flat bottom, would not any skilled mechanic know that the central aperture could be readily closed by a patch or piece of metal applied by seaming, soldering, or riveting?

Most certainly.

X 56. Making the same assumption, what is the difference
193 between this process of forming the bottom and the process followed by defendant, other than the fact that in one case the body submitted to the preliminary crimping operation is cone-shaped, while in the other it is cylindrical?

In one case a blank is cut of a shape to form the body and furnish the material for the bottom, while in the other case a blank is cut of a shape to form the body, furnish the material for the bottom, and also partially form the bottom preliminary to the crimping.

X 57. The question excluded the difference you point out in the answer and related solely to the crimping process.

(Objected to as irrelevant to the issues in the case.)

In defendants' case the crimping is performed upon focally formed bottom metal, while in the Haseltine case the bottom metal must be focalized before the crimping begins, and in the latter case disposition must be made of an excessive amount of metal at the inner portions of the bottom.

X 58. Is this all you desire to say in answer to this question?

I would add that in the procedure with the conical vessel the process of bottom-forming as distinguished from the mere supply of material, for it begins with the cutting of the flat sheet, while in the cylindrical case it begins only with the crimping.

X 59. If the defendants' process of crimping radially is followed in a cylindrical vessel would not the first crimping operation result in making a cone-shaped portion at the crimped end of the cylindrical body?

Judging of defendants' process from the Reynolds patent, which recites that the work must be done with suitable dies, I should unhesitatingly say that he could, by suitable means, cone the end of the cylindrical vessel.

X 60. Have you ever examined U. S. letters patent No. 156,591, marked "Defendant's Exhibit Powers Box Patent?"

I have.

194 X 61. Please state whether you do not find that in the process of forming the bottom of the cylindrical box, as described in that patent, the first crimping operation results in making a cone-shaped portion at one end of the cylindrical body.

I do. The cone is first produced by crimping, and this cone is smashed down, the material being pasteboard.

X 62. Now please answer this same question, referring to the Haseltine patent.

I will answer in the same manner, except that the pasteboard feature is inferred.

X 63. If you had dies of proper construction to crimp in radially the end of a cylinder, what, if any change, would you have to make in such dies in order to render them operative to crimp in radially the smaller end of a tapering or conical body like the body of one of defendants' coal-hods?

I think the same dies might be used, though it would probably be necessary to reduce the depth of the central portion of the crimpers, owing to the fact that if the crimpers were properly formed to dispose of the great amount of surplus metal in the cylindrical vessel they would overstrain the properly proportioned metal in a conical structure and might rupture the bottom.

X 64. What change, if any, would it be necessary to make in the construction of the dies shown in the Powers box patent in order to make such dies operative to perform the crimping operations to produce defendants' coal-hod?

The guide flange on the upper die of the Powers patent, essential in his process, would have to be entirely cut away before the die could be at all used on the conical coal-bucket, and in addition to that the crimping ribs would have to be altered in their inner portions.

X 65. Would these changes be within the knowledge of a mechanic skilled in metal-working?

Assuming that you wish to know if the skilled die-maker could accomplish the changes after being advised of the new pro-

195 cedure, I should say that the changes would be within his ca-

pacity. Assuming that you wish to show whether a skilled mechanic would or could conceive of the change in the method leading to the changes in the dies, I answer that he could not without the exercise of invention.

X 66. Assuming that the Haseltine patent refers only to paper articles, would there be any invention, in your opinion, in using the crimping process therein described for metal articles?

There might be, especially in case the process, when followed in metals, would endow the product with qualities not attainable in paper.

X 67. You say "there might be." What is your opinion about it?

Pasteboard is somewhat elastic; it lacks what is technically called "a limited elasticity." Take a piece of it in your fingers and fold it and the fold will spring open, and it will still possess this property even after being subjected to enormous pressure. Take a piece of sheet metal—metal rolled even so hard as to possess considerable elasticity—fold the metal like the card, and you will find the same elastic tendency, for the fold will fly open; but subject the folded metal to a heavy pressure and you will compress it past its limit of elasticity, and the elasticity in the fold will entirely disappear. You will thus see that permanent forms can be given to elastic metal by folding that cannot be given to elastic paper. In making a box of paper, as in the Haseltine patent, some sort of a keeper would most likely be found necessary to keep the crimps from unfolding. A pasted lining applied over the crimped surfaces might form such a keeper. A box might be made of metal possessing considerable elasticity and need no keepers to retain the crimp folds. Again, the crimps in paper tend to uncrimp and destroy the bottom of the box, while the presence of the crimp in the metal bottom would add to its integrity and stiffness. Essential elements become dispensable and new and important results become achieved. I think there would be invention in the change of material under such circumstances.

196 You have not examined, have you, "Defendant's Exhibit Haseltine Cans Nos. 1–7"?

No, sir. I know nothing of them.

JAMES W. SEE.

Defendants' counsel here gives notice that he expects to take further testimony in rebuttal of some of the testimony of this witness.

Complainants object to any further time being given to defendants to take testimony in this case, as the testimony just taken is purely in rebuttal and under the order of the court on the reopening of the case.

197 U. S. Circuit Court, Southern District of New York.

CHARLES HOFF and PETER RENNER
vs.
IRON CLAD MANUFACTURING COMPANY. } In Equity.

Testimony taken in behalf of the defendant for a rehearing of this cause under and pursuant to the order of this honorable court filed June 12th, 1886, before John A. Shields, Esq., examiner.

NEW YORK, *October* 4, 1886—2 p. m.

Met pursuant to agreement, formal notice of examination being waived.

Present: George J. Murray, Esq., of counsel for complainants; Ernest C. Webb, Esq., of counsel for defendant.

Defendant's counsel offers in evidence United States letters
198 patent No. 199,370, dated January 22, 1878, granted to Isaac Kearns for improvement in tinware, and the same is marked "Defendant's Exhibit Kearns Patent," J. A. S., ex'r.

Defendant's counsel also offers in evidence United States letters patent No. 231,522, granted to Joseph D. Clark and William Wells November 11, 1879, for improvement in metallic baskets, and the same is marked "Defendant's Exhibit Clark & Well's Patent," J. A. S., ex'r.

Defendant's counsel also offers in evidence a certified copy from the records of the United States Patent Office of letters patent of Great Britain No. 3578, of November 3, 1873, granted to George Hazeltine for improvements in cylindrical and other boxes, cases, cans, and similar vessels, and the same is marked "Defendant's Exhibit Hazeltine Patent," J. A. S., ex'r.

Defendant's counsel states that he will be unable to commence the examination of witnesses to-day.

Adjourned, by consent, to October 5, 1886, at 10.30 a. m.

NEW YORK, *Oct. 5th*, 1886—10.30 a. m.

Met pursuant to adjournment.

Present: Counsel as before.

EDWARD M. PEACOCK, a witness called on behalf of the defendant, being duly sworn, deposes and says as follows:

Q. 1. You are the Mr. Edward M. Peacock, are you not, who testified in this suit on the 26th day of February, 1885?

A. I am.

199 Q. 2. What experience have you had, if any, in the manufacture of sheet-metal vessels and the construction of the necessary dies for such vessels?

A. I have been working at the trade of tinsmith since 1866, and have had experience in making patterns for dies and castings since 1874.

Q. 3. During this period have you also been engaged in the manufacture of sheet-metal vessels? And, if so, please state the kind of vessels.

A. From 1866 till 1874 I was engaged almost exclusively in the manufacture of vessels from sheet tin. Since that time I have been making articles from both tin, light and heavy sheet iron, and occasionally of copper and brass.

Q. 4. Please state the kind of vessels.

A. Milk-cans, ash-cans, coal-hods, watering pots, and special orders from drawings and specifications.

Q. 5. During your experience in the manufacture of vessels of the classes you have named have you or not ever made any dies or patterns for dies from descriptions or drawings of the vessels to be produced?

A. I have made both working tools from sheet metal and patterns from which castings were to be made for the same.

Q. 6. Have you examined the specifications and drawings of letters patent of Great Britain No. 3578, of November 3d, 1873, and marked as Exhibit Hazeltine Patent?

A. I have.

Q. 7. Have you made any cans having the bottom formed in accordance with and illustrating the method or process described and shown in the Hazeltine patent?

A. I have; several.

Q. 8. Please produce them.

Witness produces seven cans, which are offered in evidence
200 and marked "Defendant's Exhibits Hazeltine Cans Nos. 1 to 7, inclusive, J. A. S., ex'r."

Q. 9. In your opinion is the description of the Hazeltine patent, taken in connection with the drawings, sufficiently full and clear to enable a mechanic familiar with the construction of sheet-metal vessels to produce a can or other metal vessel having its bottom formed by folding in the sides of the cylinder at one end and then compressing and flattening the folded-in portions?

A. It is.

Q. 10. In your opinion as a practical mechanic, if it were old in the art to produce a cylindrical vessel having its bottom formed by folding in the side of the cylinder at one end and then compressed and flattening the folded-in portions, would it require invention to form the bottom of a tapering vessel in the same way?

Objected to as incompetent.

A. It would not.

Q. 11. Which would be the easiest to fold in this way—a tapering vessel or a cylindrical vessel?

A. A tapering vessel.

Q. 12. Please state the gauge and weight of the metal of the Exhibits Hazeltine Cans Nos. 1 to 7, inclusive.

A. No. 1 is made from what we term XXXXXXX tin, which is light twenty-two gauge, weighing about one and one-eighth lbs. per square foot.

Exhibit No. 2 is of the same gauge and weight metal.

Exhibit No. 3 is made from No. 20 gauge iron, weighing a little over $1\frac{1}{2}$ lbs. per square foot.

Exhibit No. 4 is XX tin, which is light twenty-six gauge, weighing about $\frac{3}{4}$ lbs. per square foot.

Exhibit No. 5 is XXXX tin, which is light No. 24 gauge, weighing $\frac{95}{100}$ lbs. per square foot.

201 Nos. 6 and 7 are both made of No. 28 iron, such as we commonly use for the making of coal-hods, weighing $\frac{65}{100}$ lbs. per square foot.

Cross-examination by Mr. MURRAY:

Q. 13. You are still in the employ of defendant's company, are you not?

A. I am.

Q. 14. About how many of the Reynolds coal-hods having the crimped and folded bottom have been made by the company in the last three months?

Objected to as not responsive to the direct examination and also as immaterial.

A. I can form no definite idea, as we were making several kinds of hods and I have kept no record as to the different classes.

Q. 15. What proportion of the hods manufactured by the company were of the Reynolds pattern?

Same objection.

A. You mean at the present time?

Q. 16. Yes, sir.

A. That I am unable to say for like reasons.

Q. 17. Do you make as many as ten of the Reynolds to one of the old kind of hods?

Same objection.

A. To attempt to answer that question would be merely guesswork, and I could not give any definite answer. It might be more and it might be less, as in the last three or four weeks I think we have been running an unusual number of "Ladies' Favorite" hods, which do not have the crimped bottom.

EDWARD M. PEACOCK.

Sworn to before me—

JOHN A. SHIELDS, *Examiner.*

202 HENRY L. BREVOORT, a witness called on behalf of the defendant, being duly sworn, deposes and says as follows:

Q. 1. Please state what connection you have had with this suit.

A. I was previously called upon to testify in this case when it was at final hearing, and since that I have made one or two affidavits for the defendant herein.

Q. 2. Have you read the opinion of his honor Judge Wallace?

A. I have.

Q. 3. Have you examined and do you understand Defendant's Exhibits Kearns Patents, Clark & Wells Patent, and Hazeltine Patent?

A. I have read the patents inquired about in question, and I think I understand what they describe.

Q. 4. Please compare the method or process covered by the Hoff patent in suit with the method or process of forming a bottom described and shown in the Kearns patent, and state in what respect they are similar or dissimilar, giving your reasons for any opinion you may express.

A. I have made the comparison called for in the question, and it seems to me that the Kearns patent shows in substance the method set forth in the first claim of the Hoff patent. The method is for forming the bottom of the vessel, and it first consists, as set forth in the claim, in forming a cone-shaped body and then folding in the cone end of the body in crimps to form a bottom. The Kearns patent describes a vessel of the same class to which the Hoff patent relates, and in the Kearns device the surplus metal of the bottom is taken up in an annular crimp or fold, which is finally flattened upon the exterior of the bottom of the vessel, thus giving to the vessel a crimped bottom formed of three thicknesses of metal, enabling the vessel to resist wear, and illustrating the method of Hoff, in
203 that it shows with a conical vessel the crimping in of the metal at the lower portions to form a re-enforced bottom. Of course, in the Kearns device the metal might have been crimped in two or more crimps, but only one crimp is shown and illustrated. Although the Kearns device does not show identically the same process as is claimed by Hoff, it nevertheless shows a method of forming the bottom of a substantially similar vessel by crimping in the metal of the bottom.

Q. 5. Please make the same comparison with Defendant's Exhibit Clark & Wells Patent.

A. The Clark & Wells patent describes a metallic basket of conical form. The metal at the smaller part of the cone is crimped in vertical crimps, and at the bottom the metal is drawn in so as to form a part of the bottom of the vessel. The vertical crimps, where the metal is turned inward, are shown in the patent as flattened, and so much of the bottom as is formed by these flattened crimps is thickened and strengthened. The bottom of the vessel, other than that formed of the folded-in and crimped portion of its flattened crimps, is closed by a separate plate.

It seems to me that the Clark & Wells patent shows the method of the first claim of the Hoff patent. First, there is formed a cone-shaped body, and then the end of the cone is folded in crimps, which are flattened and form a part of the bottom. It is true that in the Clark & Wells patent the folded-in portions do not form the entire bottom of the metallic basket, and if the Hoff method is by the court held to be one which requires the formation of the entire bottom of the vessel by the folding in of the crimped portion, then under such views the Clark & Wells patent would not show the invention. But if it is not essential in the method of Hoff that the entire bot-

tom be formed by folding in and flattening the crimped portion, then with such an understanding of the claim the Clark &
204 Wells metallic basket, in my opinion, shows the same process as is set forth in the first claim.

Q. 6. Please make the same comparison between the Hoff patent and the method of forming the bottom of cylindrical and other boxes, cases, cans, and similar vessels described and shown in Defendant's Exhibit Hazeltine Patent.

A. I have made the comparison called for in the question, and I think that the Hazeltine patent shows the same method as is described in the Hoff patent. The Hazeltine patent relates to the manufacture of boxes, cans, and the like, and it describes the process of forming such articles, and it also illustrates and describes certain instrumentalities with which the process may, if desired, be carried out. The process consists in first crimping the end of the box or can into what may be called vertical crimps, which crimping operation forces the metal inwards towards the centre of the vessel, the bottom of which is being formed. After the crimps have been thus made the crimped end of the vessel is subjected to pressure between dies for the purpose of flattening the crimps and forming a partial bottom, which is then to be closed by the insertion of a separate piece. The same method is also shown for forming the necks of metallic bottles. Now, it is clear from this Hazeltine patent that first a body for a suitable vessel was formed from a properly shaped blank, and that the end was then folded into crimps, which were subsequently flattened to form the bottom of the vessel. It is true that the Hazeltine patent does not describe a conical vessel, but, on the other hand, a cylindrical vessel; but I do not understand that in this connection the particular shape of the vessel is a matter of any moment. The Hoff patent says: "To change the blank to make a different form would be the work of a mechanic and require no invention. It is also evident that my invention is applicable to buckets, scoops, and many other vessels made of sheet metal."
205 Now, buckets, scoops, and the like are frequently made conical and cylindrical as well. Consequently I understand that the patent includes a cylindrical vessel as well as a conical vessel. I might state that the process can be more readily practiced upon a conical vessel than upon a cylindrical vessel. I have practiced the Hazeltine process, and I refer to the exhibits, Hazeltine cans 1 to 7, produced by the last witness, which illustrate the Hazeltine process. One of these cans was produced that had the bottom completed by the addition of a separate piece of metal. In the Hoff patent, as I have before said, the entire bottom is formed by the crimping in of the sides of the vessel and the subsequent flattening of the crimps, while in the Hazeltine method the bottom is only partly formed by the flattened crimps, and if the Hoff patent is limited to forming the entire bottom by crimping in the metal at the sides, then of course the Hazeltine patent does not show that invention; but if the patent is not so limited, then, in my opinion, the Hazeltine patent describes fully and completely the process of Hoff. It describes the formation of a body, the crimping of the end of the body, the folding in and

flattening of the crimps that form the bottom, and as a result of the process a bottom for a metallic vessel is formed which is made from the metal of the body, taken up in crimps and subsequently flattened, producing a strong and substantial bottom, having the advantage of the thickening resulting from the doubling of the metal upon itself and forming the crimps.

Q. 7. You have referred to the fact that in the Hoff patent a method is described of forming a complete bottom to the vessel by crimping, while by following the method described in the Hazeltine patent the bottom is only partially formed by crimping. Now, please state whether or not you have watched the construction of the defendant's coal-hods during the process of manufacture,
206 and, if so, how that process compares with the Hazeltine process.

A. I have watched the process of manufacturing the defendant's coal-hods, and I fully understand the method of making the said hods and the construction of the hod itself. In the manufacture of the defendant's hods the body is first formed; it is then subjected to a crimping operation, and then to an operation that flattens the crimps; now, after the crimps are flattened, there results a vessel with only a partial bottom—that is to say, the vessel, so far as the bottom goes, is substantially in the same condition as the crimped and flattened vessel marked "Defendant's Exhibit Hazeltine Can No. 3." After the crimping and flattening of the partial bottom of the defendant's coal-hods has taken place the hole left in the partial bottom is filled by inserting and properly attaching a metallic plate as in the case of the Hazeltine patent, where the partial bottom is completed by the addition of a separate piece. The Hazeltine process results in an article having the same features, in regard to the bottom, as have defendant's hods—that is, neither of the vessels have a complete bottom without the addition of a separate piece. In the Hoff patent there is no necessity of adding any separate piece to form a complete bottom, but the bottom results and is made entirely by the crimping in of the metal itself, and in this regard is unlike both the Hazeltine method and the defendant's method. The can-Defendant's Exhibit Hazeltine Can- No. 7 and No. 6 are both made from the same metal as the defendant's hods, and some of the other exhibits are made from heavier and others from thinner metal than is used in the structure of the defendant's coal-hod.

Adjourned to October 6, '86, at 10.30 a. m.

207 NEW YORK, *Oct. 6th*, 1886—10.30 a. m.

Met pursuant to adjournment.

Present: Counsel as before.

Continuation of the direct examination of HENRY L. BREVOORT by Mr. WEBB:

Q. 8. Do you understand from the specification of the Hazeltine patent that the process therein described is to be used for metal goods?

A. I do, for I find in the patent that the invention relates to improvements in cylindrical and other boxes, cases, cans, etc. Now, a can is a metal vessel, and the term "can," so far as I know, is never applied to any vessel unless it is of metal. The patent also speaks of swaging, likewise of upsetting. These terms, "swaging" and "upsetting," are also terms that are used only to express operations conducted upon metallic articles, and consequently it is my opinion that the said Hazeltine patent does refer to metallic articles as well as to articles of paper.

Q. 9. If the Hazeltine patent did not specifically refer to metal articles would there be any invention, in your opinion, in using the same process for metal that has been used for other materials?

Objected to as leading, suggestive, and incompetent.

A. There would not be any invention.

HENRY L. BREVOORT.

Cross-examination waived.
Defendant rests.

Sworn to before me Oct. 8, 1886.

JOHN A. SHIELDS, *Examiner.*

208 Complainants here offer in evidence as part of their case the certified copy of file wrapper and contents in the matter of the rejected application of Timothy J. Powers, filed in the U. S. Patent Office August 19, 1873, which papers were used at the argument of the motion for a rehearing and filed in the clerk's office, and complainants' counsel request the examiner to mark the same "Complainants' Exhibit Powers' Abandoned Application."

Also certified copy of the drawing in the matter of the above-named application, to be marked Complainants' Exhibit Drawing of T. J. Powers' Abandoned Application.

Counsel for defendant objects to the introduction of these exhibits as incompetent, irrelevant, and immaterial.

209 Circuit Court of the United States, Southern District of New York.

CHARLES HOFF and PETER RENNER
vs.
IRON CLAD MANUFACTURING COMPANY. } In Equity.

This cause coming on to be heard on the complainants' motion to strike out from this suit all rebutting or replying testimony and evidence taken and introduced on the part of the defendant herein on the 27th day of December, 1886, and Mr. Arthur v. Briesen having been heard in support of such motion, and Mr. Frederic H. Betts having been heard in opposition thereto—

Now, therefore, upon consideration thereof it is—

Ordered that the said motion be, and the same hereby is, granted; and it is—

Further ordered that the testimony and evidence taken and introduced herein on the 27th day of December, 1886, on the part of the defendant be, and the same hereby is, stricken out.

WILLIAM J. WALLACE.

210 United States Circuit Court, Southern District of New York.

CHARLES HOFF and PETER RENNER
vs.
IRON CLAD MANUFACTURING COMPANY. } In Equity.

Testimony taken in rebuttal in behalf of defendant for a rehearing in this cause, before John A. Shields, Esq., examiner.

NEW YORK, *December* 27, 1886—10 a. m.

Met pursuant to notice and agreement.

Present: George J. Murray, Esq., of counsel for complainants; Ernest C. Webb, Esq., of counsel for defendant.

EDWARD M. PEACOCK, recalled and examined on behalf of the defendant, deposes and says as follows:

Counsel for complainants object to the examination proposed because it is not authorized by the order of the court for the reopening of the case, and gives notice that at the rehearing he will move to have all testimony taken on behalf of the defendant subsequent to the closing of complainants' case stricken from the files.

211 Q. 1. Have you, at my request, made some articles illustrating the formation of bottoms by the process or method practiced by the defendant in the manufacture of coal-hods of the kind known as the crimped-bottom hod?

A. I have made two pails.

Q. 2. Please produce the pails referred to and state what they are.

Witness produces two pails and says:

A. One is made from a straight cylinder and one from a tapering or conical cylinder or body.

Q. 3. Can you produce the parts to illustrate the several steps followed by you in making these pails?

A. I can and do. First, the blanks; second, the cylinders ready for crimping; third, the cylinders crimped ready for closing, and, fourth, two cylinders closed ready for the small bottom.

The pails produced by the witness offered in evidence by defendant's counsel and respectively marked "Cylindrical Pail," "Tapering Pail," J. A. S., ex'r.

The parts produced also offered in evidence and respectively marked "Blank for Cylindrical Pail," "Body for Cylindrical Pail," "Cylindrical Body Crimped," "Cylindrical Body with Crimps Flattened," "Blank for Tapering Body," "Tapering Body," "Tapering Body Crimped," and "Tapering Body with Crimps Flattened."

Q. 4. What, if any, difference was there in the construction of the

dies you used for crimping the cylindrical and tapering bodies you have produced?

A. The crimping was done on each with the same tools, without alteration.

212 Q. 5. Can you produce the dies you used for crimping the cylindrical and tapering bodies you have produced?

A. I can, and do.

Q. 6. Please describe the dies you have produced.

A. Die No. 1 is the stand for holding the lower die for both crimping and flattening operations; No. 2 is the lower die for the first or crimping operation; No. 3 is the upper die or force for the crimping operation; No. 4 is the lower die for the closing or flattening operation; No. 5 the upper die or force for the same.

Dies offered in evidence by defendant's counsel and marked as designated by witness.

Complainants' counsel, repeating the above objection, declines to cross-examine.

Defendant's counsel insists that the objection is not well taken, and further insists that a motion to suppress the deposition must be noticed and made in the regular way before the hearing and within a reasonable time after the taking of the deposition.

Defendant's counsel now offers the witness for cross-examination.

Complainants' counsel insists that the deposition is irregularly taken and will rely upon his objection to the same above made.

EDWARD M. PEACOCK.

Taken and subscribed before me this 27th day of December, 1886.

JOHN A. SHIELDS, *Examiner.*

213 HENRY L. BREVOORT, a witness recalled on behalf of the defendant, deposes and says as follows:

Complainants' counsel repeats the former objection.

Q. 1. Have you read the deposition of the complainants' expert, Mr. James W. See?

A. I have, carefully.

Q. 2. What form of vessel do you understand Mr. See includes as within the Hoff invention as covered by the patent in suit?

A. As I understand Mr. See's contention, he holds that the only vessels that would come within the Hoff invention would be those so shaped that the portion intended to form the bottom should already be, as he calls it, "focally arranged"—that is, the metal to form the bottom must, in the blank, be coned previous to the crimping operation.

I produce a drawing which illustrates the forms of vessels that I understand are included by Mr. See as within the Hoff invention. Fig. 1 of the sketch which I produce shows a blank having a cylindrical body and a coned end which is to be crimped in; Fig. 2 shows a coned blank having no cylindrical portion, and, as I understand from Mr. See, it is immaterial, in his judgment, what shape

No. 225
Hoffstal
& Co } p. 214

Fig I

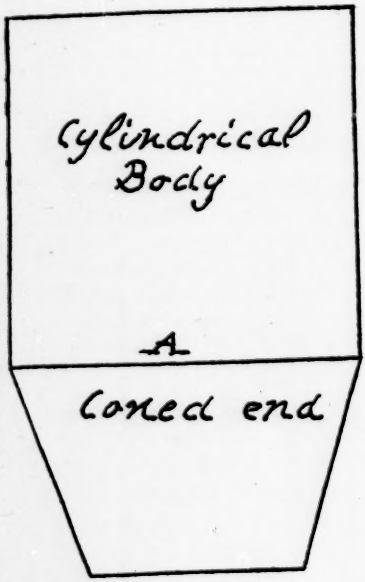
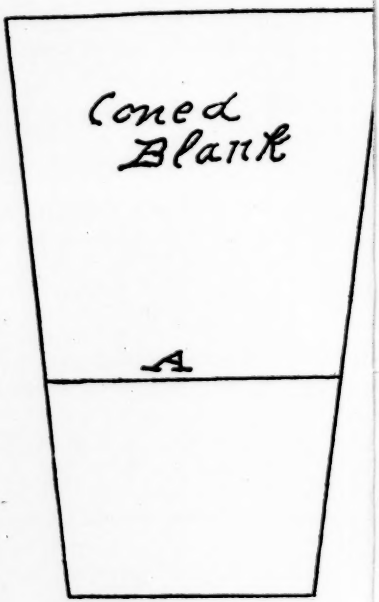


Fig 2



Hoffstal
vs
Iron Clad Co
Dept Exhibit
"Fireroom Sketch"
J. A. S. Exr.

the blank is above the line A in the two figures, the only material and essential feature being that the blank below the line A should be coned as a preliminary step before the crimping in and formation of the bottom; thus, above the line A the body might have any shape which could in practice be given to it, so long as below the line A it was of conical form.

The drawing produced, offered in evidence by defendant's counsel, and marked Defendant's Exhibit "Brevoort's Sketch."

(Here follow diagrams marked pp. 214 & 215; p. 215 is a duplicate of 214.)

216 Q. 3. Do you understand from Mr. See's evidence that he denies that the process of the Hazeltine English patent is a practical one, and that the process as described in said patent relates to sheet-metal vessels?

A. I do not understand that Mr. See anywhere denies the practicability of the Hazeltine process described in the Hazeltine patent, and on page 7 of the printed copy of his deposition he refers to the Hazeltine patent, and speaks of the "projecting side metal;" thus he includes metal as well as paper, which he refers to further on.

Q. 4. Please state whether you agree with Mr. See as to the conclusions reached by him regarding the crimping in of cylindrical and conical vessels, giving your reasons for any opinion you may express.

A. I do not agree with Mr. See. As I understand Mr. See's contention, it is briefly this: It being old to crimp in the end of a cylindrical vessel, there was in some way invention involved in crimping in the end of a vessel having the portion that is crimped in cone shaped before the crimping takes place. Now, I fail to see that there is any force in this position taken by Mr. See. After a cylindrical vessel has been crimped in and a bottom formed by flattening the crimps, it was obvious that the same operation could be performed, and, in fact, could more readily be performed upon a vessel whose shape was conical previous to crimping. Thus, if in the art it had only been known that conical vessels could be crimped in and subsequently flattened, it might have required some invention or experiment at least to pass from the conical form of blank to the cylindrical form, because in a conical form, as Mr. See puts it, the metal is already started inwards, while in the cylindrical form it is not. Now, as a matter of fact, the art stands in a position
217 just the reverse of this. It was old to crimp in the sides of the more difficult form of vessel, to wit, the cylindrical vessel, and then flatten the crimps to form a bottom. This being the art, every mechanic knew that he could with equal facility, and, in fact, with greater facility, crimp in the conical vessel in which the metal was already started inwards. There was no invention or discovery in finding out that the process was equally well adapted for the conical form as well as the cylindrical form. The exhibits produced by Mr. Peacock show conical and cylindrical vessels having their

bottoms first crimped in and then flattened, the crimping and formation of the bottom being produced by the same dies in the two cases. These exhibits give a practical illustration that the dies adapted for one form may be used upon another forms.

Q. 5. Please state whether you agree with Mr. See as to the conclusions reached by him regarding the Clark and Wells patent.

A. I do not. After an examination of the Clark and Wells patent anybody would be informed that a partial bottom could be formed by the process of crimping the metal and flattening it, and it then becomes a question of degree as to how much of the bottom is constructed in this way. It seems to me that after the reading of the Clark and Wells patent the formation of a bottom or a part bottom by crimping and flattening would from the reading of the patent be taught. Therefore I disagree with Mr. See as to his conclusions about this patent, and I affirm the opinion previously expressed by me in regard to that which the Clark and Wells patent shows.

Complainants' counsel, for the reason above stated, decline to cross-examine.

Defendant's counsel makes the same reply as heretofore
218 made at the end of Mr. Peacock's deposition, and offers the witness for cross-examination.

HENRY L. BREVOORT.

Taken and subscribed before me this 27th day of December, 1886.

JOHN A. SHIELDS, *Examiner.*

218*b* UNITED STATES PATENT OFFICE.

ISAAC F. KEARNS, of Chicago, Illinois.

Improvement in Tinware.

Specification forming part of Letters Patent No. 199,370, dated January 22, 1878; application filed December 26, 1877.

To all whom it may concern:

Be it known that I, Isaac F. Kearns, of Chicago, in the county of Cook and State of Illinois, have invented certain improvements in tinware, of which the following is a specification:

This invention relates to a method of strengthening or re-enforcing those parts of the tin vessel which are most subject to wear.

It consists in forming upon the bottom of the vessel, and of the material of said bottom, a fold, which is bent up against the bottom until it is flat, so that at the fold there are three thicknesses of metal in close contact, to resist wear at this exposed point. After being thus provided with the flattened fold the vessel is retinned, so that the crevices at the inside and outside are closed, and water excluded from the fold, so that the fold may wear through two thicknesses without causing a leak.

(Here follows diagram marked p. 218*a*.)

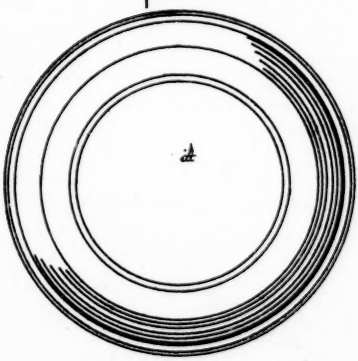
218 a

I. F. KEARNS.

Tinware.

No. 199,370. **Patented Jan. 22, 1878.**

FIG. 1.



No. 225.
Hoffstot
v.
I. C. M. Co.
} p. 218 a

FIG. 2.

FIG. 3.

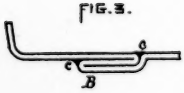
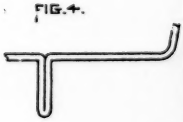


FIG. 4.



WITNESSES:
Forde R Smith
Raymond Bliss

INVENTOR:
Isaac F. Kearns
by Munday & Evarts
attys.

In the accompanying drawings, which form a part of this specification, figure 1 is a bottom view of the tin pan provided with my improvement. Fig. 2 is a sectional view of the same. Fig. 3 is an enlarged section of the fold; Fig. 4, the same before folding.

In the said drawings, A represents the bottom of a stamped tin pan or vessel. Upon this bottom is formed a deep, narrow groove, opening into the pan and projecting below the bottom. This may be done by dies at the time of or subsequent to the formation of the pan. The pan in this condition is represented, so far as the groove is concerned, by Fig. 4 of the drawing. Subsequently, by the use of dies or swaging-tools, I close this groove at its lips, and bend the ledge thus formed up against the bottom, as at B, bending it, preferably, toward the outer edge of the pan, because the metal works best thus. The pan is now retinned, which fills the minute crevices *c c* with tin, and guards the fold from the penetration of moisture from inside or outside.

Having thus fully described my invention, I will state that I am well aware that tin vessels have been made with a projecting ledge or annular groove at the bottom, filled with solder from the inside, to serve as a protection from wear; and I do not claim such as my invention.

What I claim as new, and desire to secure by letters patent, is—

The vessel of tinware, formed with a fold, B, in the metal of the bottom, to serve as a re-enforcement against wear, substantially as specified.

ISAAC F. KEARNS.

Witnesses:
JOHN W. MUNDAY.
FORDE R. SMITH.

218*d*

UNITED STATES PATENT OFFICE.

JOSEPH D. CLARK and WILLIAM WELLS, of Perry, Iowa.

Improvement in Metallic Baskets.

Specification forming part of Letters Patent No. 221,522, dated November 11, 1879; application filed March 13, 1879.

To all whom it may concern:

Be it known that we, Joseph D. Clark and William Wells, of Perry, in the county of Dallas, and in the State of Iowa, have invented certain new and useful improvements in metallic baskets; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of our invention consists in the construction of a sheet-metal basket and a bail for the same, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which our inven-

tion appertains to make and use the same, we will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

(Here follows diagram marked p. 218*c*.)

Figure 1 is a central vertical section of our sheet-metal basket. Fig. 2 is a side view, partly in section, of the bail. Fig. 3 is a perspective view of a part of the body and bottom of the basket.

A represents the body or sides of the basket, and B is the bottom thereof. The body A is made of a rectangular blank or piece of sheet metal, which is bent in cylindrical form, with the ends of the sheet metal overlapping each other and riveted, as shown at *a*, while the metal is straight. The entire body of the basket has therefore but one riveted seam, which, in a bushel-basket, is only about a foot long, and, being straight, the riveting can be done very easily and fast. The cylindrical body is then provided with a series of corrugations, *b b*, which extend from near the upper entirely through the lower edge. These corrugations are formed in a machine for the purpose, and are so made as to give shape to the basket.

The corrugations *b* are made broad and shallow at their upper ends, near the top of the basket, and then gradually decrease in width and increase in depth toward the bottom.

The upper edge of the body is turned over a wire, *d*, to form the top rim of the basket. The bottom edge is turned inward and over, as shown at *e*, and flattened to form a joint with the turned edge of the bottom B, or, in other words, making a double seam. By this seaming of the body to the bottom the corrugations are crimped into flat folds, giving extra wearing thickness on the bottom. The bottom B may be made of heavier sheet metal than the sides.

The double seam *e*, which unites the sides and bottom, may be made on the under side of the bottom, as shown in Fig. 1; or it may be turned up on the sides of the basket, if desired.

C represents a handle or bail for sheet-metal baskets. It is made from a sheet-metal tube filled with rope or other similar material, *i*, and has short pieces *h h*, of wood or metal, inserted in its ends for strengthening the rivet-holes.

The rope or similar filling *i* in the tubular handle makes the same strong and durable, without increasing its weight to any extent that would make it clumsy and ungainly.

Having thus fully described our invention, what we claim as new, and desire to secure by letters patent, is—

1. As an article of manufacture, a sheet-metal basket whose taper body has a series of corrugations broad and shallow at the top and narrow and deep at the bottom, said body being united to a flange of the basket-bottom by a double-folded seam lying inwardly against the bottom, the corrugations being continued in flat folds beneath said seam, substantially as herein set forth.

2. A sheet-metal basket handle or bail made of a sheet-metal tube filled with rope or other fibrous material, and having its ends provided with plugs, as and for the purposes set forth.

218c

J. D. CLARK & W. WELLS.

Metallic-Basket.

No. 221,522. **Patented Nov. 11, 1879.**

No. 225.
Hoffedal
vs
I. C. M. Co
} p 218 C

Fig. 1.

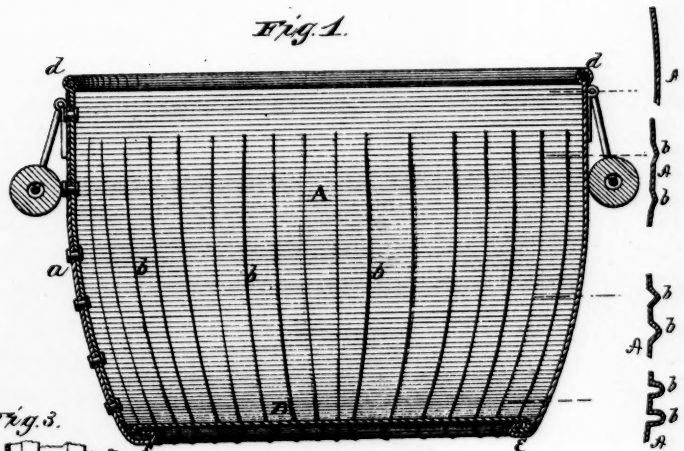


Fig. 3.

Fig. 2.

WITNESSES
Franck L. Durand
H. Aubrey Coulmin

By

INVENTOR
J. D. Clark and
W. Wells.
Alexander Mason
ATTORNEYS

In testimony that we claim the foregoing we have hereunto set our hands this 17th day of February, 1879.

JOSEPH D. CLARK.
WILLIAM WELLS.

Witnesses:
SAM'L JONES.
C. C. COX.

219 At a stated term of the circuit court of the United States of America for the southern district of New York, in the second circuit, held at the United States court-rooms, in the city of New York, on Monday, the twenty-fifth day of April, in the year of our Lord one thousand eight hundred and eighty-seven.

Present: The Honorable William J. Wallace, circuit judge.

CHARLES HOFF & *al.*
vs.
THE IRON CLAD MANUFACTURING COMPANY.

The above cause coming on this day for argument upon petition for rehearing—

Mr. A. v. Briesen is heard in behalf of complainants.
Mr. George I. Murray is heard in behalf of complainants.
Mr. Frederic H. Betts is heard in behalf of defendants.
Mr. Ernest C. Webb is heard in behalf of defendants.
C. A. V.

220 United States Circuit Court, Southern District of New York.

HOFF *et al.*
v.
IRON CLAD MANUFACTURING CO.

WALLACE, *J.*:

In view of the English patent to Hazeltine of November 3, 1873, which has been introduced by the defendant since it was permitted to amend its answer and have a rehearing of the cause, the first claim of the complainants' patent, if not void for want of novelty, can only be sustained by limiting it to one in which the method consists, among other things, in folding in the cone end of the body to form the bottom of the vessel in a series of annular ribs or rings. It is doubtful whether the claim is capable of this interpretation. If it is not, the Hazeltine patent anticipates it, because that patent clearly describes the method as applied to cylindrical vessels made of any suitable material. The method is the same, whether applied to a cylindrically shaped body or a tapering or cone-shaped body.

Without deciding that novelty is negatived, it suffices that,
221 upon the narrowed construction which it must receive in order to save it, the defendant does not infringe.

The bill is dismissed with costs.

George J. Murray and A. v. Briesen, for complainants; Ernest C. Webb and Frederick H. Betts, for defendant.

(Endorsed:) Hoff *et al. v.* Iron Clad Man'f'g Co. Opinion. Wallace, J. U. S. circuit court. Filed Apr. 27, 1887. Timothy Griffith, clerk.

222 At a stated term of the circuit court of the United States for the southern district of New York, held in and for said district, at the court-rooms in the city of New York, on the 5th day of May, 1887.

Present: Hon. William J. Wallace, circuit judge.

CHARLES HOFF & PETER RENNER
vs.
IRON CLAD MANUFACTURING COMPANY.

This cause having come on to be heard at this April term of this court upon the bill of complaint, answer, and replication, the order of this court granting a rehearing and the proceedings thereunder, and the proofs taken and filed in said cause on both sides,
223 after hearing counsel for the respective parties and after due proceedings had, it is ordered, adjudged, and decreed that the bill of complaint be, and the same hereby is, dismissed with costs to the defendant, to be taxed, and that the defendant have execution therefor.

W. J. WALLACE.

Approved as to form 2d May, 1887.

A. v. BRIESEN,
Counsel for Compl't.

Endorsed: U. S. circuit court, southern dist. of N. Y. In equity. Charles Hoff and Peter Renner *vs.* Iron Clad Manufacturing Company. Decree. To A. v. Briesen, Esq., of counsel for compl't. Sir: Please take notice that I shall mail the decree, of which the
224 within is a copy, to the Hon. W. J. Wallace, at Syracuse, N. Y., to-day, for settlement. Dated N. Y., May 2, 1887. Very resp'y, Ernest C. Webb, sol'r for def't, 22 Cliff St., New York city. Service admitted this 2d day of May, 1887. A. v. Briesen, counsel for compl'ts. U. S. circuit court. Filed May 5th, 1887. Timothy Griffith, clerk.

224½ Circuit Court of the United States, Southern District of New York.

CHARLES HOFF & *al.*
vs.
IRON CLAD MANUFACTURING COMPANY. } In Equity.

It is hereby stipulated that the foregoing may constitute the record to be sent by the clerk of this court to the Supreme Court of the United States on the appeal to said Supreme Court in the above-entitled cause, subject to any motion to correct the same, and that

the exhibits in the cause may be retained in the possession of the clerk of this court until further notice.

(S'g'd) FREDERIC H. BETTS,
Of Counsel for Def'ts & Appellees.

(S'g'd) ARTHUR v. BRIESEN,
Of Counsel for Appellant.

(Endorsed:) U. S. circuit court. Filed Oct. 12, 1887. Timothy Griffith, clerk.

225*a* Circuit Court of the United States, Southern District of New York.

CHARLES HOFF & *al.*
vs.
IRON CLAD MANUFACTURING COMPANY. } In Equity.

It is hereby stipulated that certified copy of British letters patent to George Hazeltine, No. 3578, same being an exhibit on part of defendants in above-entitled cause, be taken from the files of this court by the clerk and transmitted by him to the Supreme Court of the United States, with the transcript of record on appeal.

N. Y., October 12, 1887.

FREDERIC H. BETTS,
Of Counsel for Def't & Appellee.
A. v. BRIESEN,
Counsel for Appellant.

Ordered accordingly.

(S'g'd) ADDISON BROWN.

(Endorsed:) U. S. circuit court. Filed Oct. 12, 1887. Timothy Griffith, clerk.

225 Circuit Court of the United States, Southern District of New York.

CHARLES HOFF and PETER RENNER, Complainants and Appellants,
v.
IRON CLAD MANUFACTURING COMPANY. } In Equity.

To the honorable the Supreme Court of the United States:

The appeal of Charles Hoff and Peter Renner, complainants and appellants above named, respectfully showeth that upon the 11th day of August, 1884, the above-named complainants filed their bill of complaint in the circuit court of the United States for the southern district of New York, in the second circuit, against the above-named defendant, The Iron Clad Manufacturing Company, in a suit in equity, alleging that said defendant had infringed the rights
226 of the complainants therein as secured to them by letters patent granted on the 19th day of June, 1883, to Charles

Hoff and Peter Renner and numbered 279,871, and praying for an accounting and payment to the said complainants by the said defendant of the profits by it realized and of the damages suffered by the said complainants by reason of said infringement of said letters patent, and also that the writs of subpœna and of injunction might be issued against said defendant, its officers, clerks, agents, servants, and workmen, etc.

And these complainants and appellants further show that pursuant to said prayer a *subpœna ad respondendum* issued out of and under the seal of said circuit court and was duly served on said defendant,

227 and that said defendant appeared and answered said bill of complaint, and, among other things, in its answer denied the validity of said letters patent and denied that it infringed the same, and that a general replication was filed by the said complainants to said answer, and, issue being thus joined, thereafter testimony was taken on behalf of said complainants and on behalf of said defendant, and said cause was brought to a hearing before said circuit court, and said circuit court held and decided that said letters patent was valid and that said defendant had infringed upon the same.

And these complainants and appellants further show that, upon a petition and a supplemental petition filed by the said defendant, the said circuit court reopened the said cause and made its order directing, amongst other things, further proofs to be taken and that

228 a rehearing of the said cause be had; and that thereafter further testimony was taken on behalf of said complainants and on behalf of said defendant, and such proceedings were had in said cause that on the 5th day of May, 1887, a final decree was entered in said circuit court wherein it was, in substance, adjudged and decreed that the said bill of complaint be dismissed with costs to the said defendant to be taxed, and that the said defendant have execution therefor, whereupon said costs were taxed and judgment was entered in favor of said defendant in said circuit court, which said decree is, as these complainants and appellants are advised, erroneous and ought to be reversed.

Wherefore these complainants and appellants appeal from the whole of said decree of said circuit court to the Supreme

229 Court of the United States, and respectfully pray that the decree of said circuit court, together with the bill of complaint, answer, replication, pleadings, depositions, evidence, exhibits, and proceedings in said cause, may be sent to the Supreme Court of the United States without delay, and that the said Supreme Court will proceed to hear the said cause anew, and that the said decree of the said circuit court and every part thereof may be reversed with costs and the complainants and appellants may be given the relief prayed for in their bill of complaint or such other decree made as the Supreme Court shall deem just.

GEO. J. MURRAY,
Solicitor for Appellant.
ARTHUR v. BRIESEN,
Of Counsel.

The foregoing appeal is hereby allowed.
Dated June 15, 1887.

HOYT H. WHEELER, *Judge.*

230 STATE OF NEW YORK, *City and County of New York,* } ss:

Maurice Bloch, being duly sworn, says that he is above the age of fifteen years, and that on the sixteenth day of June, in the year one thousand eight hundred and eighty-seven, he served the annexed appeal on E. C. Webb, Esq., solicitor for the defendant in this action, at his office, No. 22 Cliff street, in the city of New York, by delivering a copy of the same to and leaving the same with his clerk during his absence therefrom, and at the same time exhibiting the annexed original to said clerk, and that on the same day and at the same place he also served the annexed appeal on The Iron Clad Manufacturing Company, the defendant herein, by leaving a copy of the same with Robert Seaman, the treasurer of said company, and at
231 the same time exhibiting the annexed original to said Robert Seaman.

MAURICE BLOCH.

Sworn to before me this 17th day of June, 1887.

C. G. M. THOMAS,
Notary Public, Kings & N. Y. Co.

(Endorsed:) Circuit court U. S., south. dist. of New York. Charles Hoff and Peter Renner, appellants, *vs.* Iron Clad Manufacturing Company, appellee. In equity. A. v. Briesen, counsel for compl't-, 229 Broadway, New York. U. S. circuit court. Filed Jun- 17, 1887. Timothy Griffith, clerk.

232 Circuit Court of the United States of America for the Southern District of New York, in the Second Circuit.

CHARLES HOFF & PETER RENNER, Complainants & Appellants,
vs.
IRON CLAD MANUFACTURING COMPANY, Defendant & Appellee.
} Bond for Damages and Costs.

Know all men by these presents that we, William A. Porter, of No. 17 Adams street, Brooklyn, New York, and Peter Burmann, of No. 21 Fayette street, Brooklyn, New York, are held and firmly bound unto the above-named Iron Clad Manufact'g Company in the sum of seven hundred dollars, to be paid to the said Iron Clad Manufacturing Company; for the payment of which, well and truly to be made, we bind ourselves and each of us, our and each of our heirs, executors, and administrators, jointly and severally, firmly by these presents.

Sealed with our seals and dated the 15th day of June, in the year of our Lord one thousand eight hundred and eighty-seven.

Whereas the above-named Charles Hoff & Peter Renner have prosecuted an appeal to the Supreme Court of the United States to reverse the decree rendered in the above-entitled suit by the judge of the circuit court of the United States for the southern district of New York:

Now, therefore, the condition of this obligation is such that if the above-named Charles Hoff & Peter Renner shall prosecute said appeal to effect and answer all damages and costs if they fail to make their plea good, then this obligation shall be void; otherwise the same shall be and remain in full force and virtue.

WILLIAM A. PORTER. [L. S.]
PETER BURMANN. [L. S.]

Sealed and delivered and taken and acknowledged this 15 day of June, 1887, before me—

JOHN A. SHIELDS,
U. S. Commissioner, S. D. of N. Y.

233 [Endorsed:] Vol. —, page —. U. S. circuit court. Charles Hoff *et al. vs.* Iron Clad M'f't'g Co. Bond for costs on appeal. A. v. Briesen, counsel for compl'ts. The within bond is hereby approved. Hoyt H. Wheeler. U. S. circuit court. Filed June 16, 1887. Timothy Griffith, clerk.

UNITED STATES OF AMERICA, } ss:
Southern District of New York, }

William A. Porter, being duly sworn, deposes aud says that he is a freeholder within the town of Flatbush, Kings Co., New York, and that he is worth the sum of fourteen hundred dollars over and above all his just debts and liabilities.

WILLIAM A. PORTER.

Sworn to this 15th day of June, A. D. 1887, before me—

JOHN A. SHIELDS,
U. S. Commissioner.

UNITED STATES OF AMERICA, } ss:
Southern District of New York, }

Peter Burmann, being duly sworn, deposes and says that he is a householder within the city of Brooklyn, Kings county, New York, and that he is worth the sum of fourteen hundred dollars over and above all his just debts and liabilities.

PETER BURMANN.

Sworn to before me this 15th day of June, 1887.

JOHN A. SHIELDS,
U. S. Com'r, S. D. of N. Y.

234 Circuit Court of the United States, Southern District of New York.

CHARLES HOFF and PETER RENNER, Complainants & Appellants,
v.
IRON CLAD MANUFACTURING COMPANY, Defendant & Appellee.
} In Equity.

By the Honorable Hoyt H. Wheeler, judge in and for the circuit court of the United States for the southern district of New York, within the second circuit, to the Iron Clad Manufacturing Company:

Whereas Charles Hoff and Peter Renner have lately appealed to the Supreme Court of the United States from a decree rendered in the circuit court of the United States for the southern district of New York, made in favor of the said Iron Clad Manufactur-
235 ing Company, and have filed the security required by law, you are therefore hereby cited to appear before the said Supreme Court, at the city of Washington, on the second Monday of October next, to do in the matter of said appeal what may remain to justice to be done in the premises.

Given under my hand, at the city of New York, in the southern district of New York, in the second circuit, the 15th day of June, in the year of our Lord one thousand eight hundred and eighty-seven.

HOYT H. WHEELER, *Judge.*

236 STATE OF NEW YORK, *City and County of New York,* } *ss:*

Maurice Bloch, being duly sworn, says that he is above the age of fifteen years, and that on the sixteenth day of June, in the year one thousand eight hundred and eighty-seven, he served the annexed citation on E. C. Webb, Esq., solicitor for the defendant in this action, at his office, No. 22 Cliff street, in the city of New York, by delivering a copy of the same to and leaving the same with his clerk during his absence therefrom and at the same time exhibiting the annexed original to said clerk, and that on the same day and at the same place he also served the annexed citation on The Iron Clad Manufacturing Company, the defendant herein, by leaving a
237 copy of the same with Robert Seamen, the treasurer of said company, and at the same time exhibiting the annexed original to said Robert Seaman.

MAURICE BLOCH.

Sworn to before me the 17 day of June, 1887.

C. G. M. THOMAS,
[L. S.] *Notary Public, Kings & N. Y. Co.*

Endorsed: Circuit court U. S., south dist. of New York. Charles Hoff and Peter Renner, appellants, *vs.* Iron Clad Manufacturing

Company, appellee. In equity. Citation. A. v. Briesen, counsel for comp'l'ts, 229 Broadway, N. Y'k. U. S. circuit court. Filed June 17, 1887. Timothy Griffith, clerk.

238 UNITED STATES OF AMERICA, } ss.:
Southern District of New York, }

I, *Joseph M. Deuel* Timothy Griffith, clerk of the circuit court of the United States of America for the southern district of New York, in the second circuit, do hereby certify that the foregoing pages, numbered from one (1) to two hundred and thirty-seven (237), inclusive, contain a true and complete transcript of the record and proceedings had in said court in the case of Charles Hoff *et al.* against The Iron Clad Manufacturing Company as the same remain of record and on file in said office.

In testimony whereof I have caused the seal of the said court to be hereunto affixed, at the city of New York, in the southern district of New York, in the second circuit, this twelfth day of October, in the year of our Lord one thousand eight hundred and eighty-seven, and of the Independence of the said United States the one hundred and twelfth.

Seal of U. S. Circuit Court, South. Dist. New York.

TIMOTHY GRIFFITH, *Clerk.*

239 HOFF }
v.
IRON CLAD CO. }

DEF'T'S EX. HAZELTINE PATENT. J. A. S., Ex'r Oct. 5, '86.

(2–175.)

DEPARTMENT OF THE INTERIOR.

[Vignette.]

8812.

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the bound volumes of this office of the specification and drawing in the matter of the English letters patent granted George Haseltine November 3rd, 1873, number 3578, for improvement in cylindrical and other boxes, cases, &c.

In testimony whereof I, M. V. Montgomery, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 23rd day of April, in the year of our Lord one thousand eight hundred and eighty-six, and of the Independence of the United States the one hundred and tenth.

Seal Patent Office United States of America.

M. V. MONTGOMERY,
Commissioner.

240 A. D. 1873, 3d November. No. 3578.

Cylindrical and Other Boxes, Cases, &c.

Letters patent to George Haseltine, of the "International Patent Office," Southampton buildings, London, doctor of laws, for the invention of "improvements in cylindrical and other boxes, cases, cans, and similar vessels and in apparatus for the manufacture of the same," a communication from abroad by Timothy J. Powers, of the city and State of New York, United States of America.

Sealed the 19th December, 1873, and dated the 3rd November, 1873.

Complete specification filed by the said George Haseltine at the office of the commissioners of patents, with his petition and declaration, on the 3rd November, 1873, pursuant to the 9th section of the patent law amendment act, 1852.

To all to whom these presents shall come I, George Haseltine,
241 of the "International Patent Office," Southampton buildings, London, doctor of laws, send greeting:

Whereas I am in possession of an invention for "improvements in cylindrical and other boxes, cases, cans, and similar vessels and in apparatus for the manufacture of the same," and have petitioned her majesty to grant unto me, my executors, administrators, and assigns, her royal letters patent for the same, and have made solemn declaration that it has been communicated to me from abroad by Timothy J. Powers, of the city and State of New York, United States of America:

Now, know ye that I, the said George Haseltine, do hereby declare that the following complete specification, under my hand and seal, fully describes and ascertains the nature of the said invention and in what manner the same is to be performed in and by the following statement, reference being had to the accompanying drawings, forming a part of this specification:

242 The first part of this invention relates to making a box of any suitable material by crimping or folding a portion of a previously prepared tube or hollow cylinder in such manner as to form the closed end thereof.

Second. To upsetting a portion of a box, forming thereby a flange or rim.

Third. Reducing a portion of one end of a box by compression.

Fourth. To necking or reducing one end of the body of a box or other vessel by folding the same.

Fifth. To a many-sided box made from a tube or cylinder when the bottom of said box is made by folding down a portion of the body thereof.

Sixth. An oval-shaped box made from a cylinder or tube when the bottom of said box is formed by folding or crimping a portion of the body thereof.

Seventh. To a new article of manufacture, consisting of a box or

other vessel of any suitable material, when constructed by folding, crimping, swaging, or compressing.

Description of the Drawings.

(Here follow diagrams marked pp. 258 & 259.)

243 Figure 1 represents a mandril whereon the material of which the box is to be made is wound or rolled into a cylinder.

Figure 2 represents a cylinder of which the box is to be made removed from the mandril.

Figure 3 shows the cylinder, figure 2, divided into several parts, each part being of the required length to form one side of a box.

Figure 4 is a shouldered punch of the required diameter to receive and support a section of a box.

Figure 5 represents a section of a box in position upon the shouldered punch.

Figure 6 illustrates the shouldered punch with a section of a box thereon beneath a die and punch by which a lining is cut and inserted into the section of a tube forming part of a box and resting upon the end of a supporting punch in position to adhere to and form the inner lining of one side of a box.

244 Figure 7 represents the punch and die in position after having cut the lining and inserted it in the body of the box.

Figure 8 is the shouldered punch with a part of a box and its lining in position previous to being crimped or folded in the process of forming the end thereof.

Figure 9 is a face view of the lining detached, the dark portion representing the adhesive substance by which the said lining is secured to the end of the box.

Figures 10 and 11 are top and side view- of a section of a box which has undergone the first stage in the process of crimping or folding a portion of the body into and forming the end thereof.

Figure 12 represents a central vertical section of the punch and die by which this preliminary crimping or creasing is effected, with a section of a box in position.

Figures 13 and 14 are a section of a punch and plan of a die, shown in figure 12, employed in this preliminary crimping.

245 Figure 15 represents a crimped section of a box resting upon a shouldered punch in position beneath a clasping die and heading tool, by which the previously crimped end is finally compressed, forming the end of the box and at the same time upsetting or folding a flange or rim thereon.

Figure 16 illustrates a central vertical section of a shouldered punch, clasping die, and heading tool in position after having completed the heading and forming a flange on one side of a box.

Figures 17 and 18 are a section and elevation of a box completed.

Figure 19 represents a central vertical section of a box, the end of one section of which is upset or reduced by compression to receive the cover or other section thereof, forming a complete box.

Figure 20 represents a section of a die and elevation of a supporting punch and heading tool by which this upsetting or reducing of one end of a part of a box is effected.

Figures 21 and 22 are central vertical sections of a male and female die by which a neck is formed by folding or crimping
246 instead of upsetting the material; by this method of folding or crimping a bottle-shaped case is readily produced.

Figure 23 represents a bottle-shaped box or vessel complete.

Figure 24 is a section of a double-walled case, in the chamber of which is placed a spiral rib to support these walls.

Figure 25 is a section of a spiral rib detached, to be placed in the chamber of a double-walled case or bottle.

Figures 26 and 27 represent sections of a cylinder with the trimming thereon at the proper distances apart to embellish the box or bottle, figure 26 being a section of a box detached from the roll or tube, figure 27 composing a number of sections.

Figure 28 represents a plan or part of a cylindrical box previous to its receiving the square shape shown in dotted lines beneath.

Figure 29 is a side elevation of a cylinder of which a square is to be formed.

Figure 30 illustrates a plan of figures 28 and 29 after having been formed into a square.

247 Figure 31 is a plan of a square box formed from a cylinder, showing portions of the sides and ends folded down to form the bottom thereof.

Figure 32 is a top view of a part of a cylinder previous to its being partially crimped into an oval-shaped box and to form the bottom thereof.

Figure 33 is also a top view of figure 32, representing the partially crimped bottom in its first *page*.

Figure 34 is a plan of figure 33, representing the partially crimped bottom completed by being headed or set down flat, the same operation forming a flange or rim thereon, which retains the box in a perfect oval.

Figure 35 is a side elevation of figure 34, showing the flange or rim thereon.

Figure 36 represents a hexagonal box formed from a section of a cylinder.

Figure 37 exhibits a side elevation of a box, both ends of which are compressed to receive covers of the same diameter as the box.

This box represents my invention as adapted to the manu-
248 facture of blasting cartridges.

Figure 38 represents a central longitudinal section of figure 37, showing a percussion tube secured to one of the covers and the manner in which the said tube is retained in position by turning or folding inward a portion of the top.

Figure 39 is a central longitudinal section of one of the covers and percussion tubes detached.

Like letters indicate corresponding parts in all of the figures.

A in the accompanying drawings represents a side elevation of a mandril, wherein the material of which the box is to be made is

wound or rolled into a cylindrical form, B. The cylinder B, figure 2, is then removed from the mandril and, by any convenient method, divided into sections C C, figure 3, of suitable length of which to form one side of a box.

A punch, D, having a shoulder, *a*, is prepared, and upon it a section, C, is placed, as in figure 5. This punch D is then presented directly beneath a die, E, and cutting punch F, by which a
249 lining, *b*, is cut, and by the continued downward movement of the punch F the lining *b* is inserted in position within the body of the cylinder of which the body of the box is to be formed and left therein, resting upon the punch D, figure 7. This lining *b* may receive a coating of paste on its upper surface, so as to adhere to the bottom of the box, as shown in figure 9, leaving a narrow rim without paste in order not to soil the other portion of the box. This section of a cylinder resting upon the shouldered punch, fitting its interior closely, is then brought beneath a concave ribbed or corrugated crimping punch, G, which crimps or partially folds its projecting end, as shown in figures 10 and 11, being the first stage in the process of forming the bottom of a part of a box, the ribs *c* on the end of the crimping punch G directing the fold *d* toward a common centre in order to produce, in the following operation, a perfect rim or flange and to lay that part of the box forming the bottom evenly.

Figure 12 represents a central longitudinal section of the
250 corrugated or ribbed punch G and supporting punch D, with a part of a box, C, in section, also after having undergone the first process of partially crimping or folding.

The next step in the manufacture of this box is to carry the partially crimped or folded section C still resting upon the supporting punch D beneath the heading punch H and into the clasping die I, figure 15, by which the partially crimped portion is finally set flat down, and at the same operation the flange *e* is formed thereon, as shown in figure 16. The top of the box may be convex instead of flat, if preferred.

Figures 17 and 18 represent the box completed with interior and exterior linings *b* and flange *e*.

In order to form a shoulder upon which the edge of the lid of a box may rest, and by which the lid or cover is retained in position, a sleeve, *f*, is inserted in the usual manner, one end projecting above the body of the box and entering into the cover, as in figure 17.

Instead of the projecting sleeve *f* to hold the cover in position
251 over the body of the box, as in figure 17, a portion of the open end of one section may be upset or compressed so as to receive the corresponding section or cover, as shown in vertical section, figure 19, thus dispensing with the extra interior sleeve *f* projecting above the edge to retain the cover or body of the box in position. By this method of compressing the end of one side of a box to receive a cover or corresponding side the box when completed presents a smooth, even surface, as in figure 19.

To upset or compress one side of a box so as to receive a cover or corresponding side, I use a supporting punch, D, upon which a sec-

tion of a box is placed in an inverted position or bottom up. A follower or the usual heading punch H is then brought down upon the bottom, when the whole descend, the supporting punch and box into the die J, and the heading punch H nearly or quite to the surface thereof. The interior of the die J is of the proper form of two diameters, so that when the section of a box is forced into it
252 that part which enters the smaller diameter *x* is upset or compressed equally or nearly so to the sides or walls of the box, as shown in figure 19. The inverted box previous to being upset or compressed to receive its cover or corresponding side is shown in dotted lines, figure 20, resting upon the punch D.

In order to produce a bottle-shaped box, K, the male and female corrugated dies M and L are formed so that the ribs *c* of the female die L receive corresponding ribs, *i*, on the male die M, the male die being elongated or necked so as to enter the recess O in the female die L, carrying a portion of the cylinder of which the box is being formed with it, thus folding one end of this cylinder into and forming a neck or bottle shape, as shown in figures 23 and 24; the bottom of this bottle-shaped vessel is formed in the same manner as that in figure 17.

A double-sided or chambered case, R, may be made by inserting one case within another, as shown in figure 24, leaving a chamber or space, Q, in which space may be placed a corrugated sup-
253 port, P. This chambered case, R, is adapted to the packing of perishable articles for transportation, the chamber serving to keep the articles placed in the inner case, *s*, apart from the outer case. The outside of the case might be corrugated perpendicularly or concentrically so as to serve the same purpose, if preferred. Of embellishing boxes one practical and expeditious method is to roll the trimming *r* for several boxes at once upon a cylinder, B, at the proper distance apart and subsequently dividing the cylinder at *w* into sections, each forming part of a box.

To form a square box from a cylinder, U, as shown in figures 28, 29, 30, and 31, an expanding mandril or roller may be employed. If the expanding mandril be used it is first inserted closed into the cylinder U, and then expanded to an oblong square, as shown in figure 28, by dotted lines, *v*, and completed in figure 30, or the cylinder may be placed upon a square or many-sided solid die, and thereby given the required form.

254 An oval box may be formed by placing a cylinder, *u*, upon a- oval die, partially folding one end, as shown in figure 33, in the same manner as the round box is commenced, and subsequently setting down flat or crown-shaped this crimped end, *d*, and if desired at the same operation form a flange, *e*, thereon, as shown in the edge view 35.

Figure 34 represents a plan of one side of a box showing the folds or crimps as radiating from a common centre, the same as in a round box. A box, *w*, suitable to contain explosive substances for blasting purposes, such as powder, dualing, &c., &c., may be made in the same manner as the smaller flat box, with the addition of providing in one of the covers *g*, as shown in section figure 38, an

opening in which is secured a tube, *m*, to contain the ignition powder or fulminate. To retain this tube *m* firmly in position a portion of the bottom of the cover *g* is turned inward and gathered or folded to the required diameter, figures 38 and 39, at *l*, to which this tube *m* is secured by pasting or otherwise.

255 To retain the exploding material within this tube *m* and preserve it from moisture a prepared water-proof cloth or paper tube, m^1, is secured thereto, and when prepared for use is gathered and tied around an electro-wire, *p*, as exhibited in figure 39, by which electro-wire the explosion of the charge is excited.

Having thus fully described the said invention, as communicated to me by my foreign correspondent, and the manner of performing the same, I wish it understood that I claim—

First. A box of suitable material made by crimping or folding a portion of a previously prepared tube or hollow cylinder in such a manner as to form the closed end thereof, substantially as herein specified.

Second. A box, a portion of which is upset, to form a flange or rim, substantially as herein specified.

Third. A box a portion of one end of which is reduced in size by compression, substantially as herein specified.

256 Fourth. A box or other vessel one end of the body of which is reduced in size or formed into a neck by folding the material thereof, substantially as herein specified.

Fifth. A many-sided box formed from a tube or hollow cylinder, when the bottom of the same is made by folding in a portion of the body thereof, substantially as herein specified.

Sixth. An oval box formed from a tube or hollow cylinder, when the bottom of the same is made by folding or crimping in a portion of the body thereof, substantially as herein specified.

Seventh. A box or other vessel of any suitable material when constructed by folding, crimping, swaging, or compressing, substantially as herein specified.

In witness whereof I, the said George Haseltine, have hereunto set my hand and seal this third day of November, in the year of our Lord one thousand eight hundred and seventy-three.

GEORGE HASELTINE. [L. S.]

Witness:

H. J. NOONE,

257 188 Southampton Buildings, London.

Ex'd: H. M. H.; E. A. M.

260 [Endorsed:] Supreme Court U. S. 1887, October term. No. 1214. Hoff & Renner *v.* Iron Clad Manuf'g Co. Certified copy Def't's Exhibit "Hazeltine Patent." (Sent up with record.)

261 Supreme Court of the United States.

CHARLES HOFF and PETER RENNER, Appellants,
vs.
THE IRON CLAD MANUFACTURING COMPANY.

Please take notice that the above-named appellants, in pursuance to the tenth rule, as amended during the October term of 1886, file with the clerk the following statement of errors, on which they intend to rely, to wit:

They claim that the court below erred in holding that the defendants have not infringed upon the first and second claims of the patent of the complainants, numbered 279,871, granted June 19, 1883; and also that the court below erred in holding that said patent was anticipated by the prior English patent of Haseltine, No. 300,578 of 1873.

In conformity with the same rule the appellants herewith also state that the following are the parts of record which they think necessary for the consideration of their said bill, to wit:

The subpœna, bill of complaint, the appearance, the answer, the replication.

The following proofs, taken on the part of the complainant, to wit:

262 Deposition of F. H. Lawson, deposition of F. Lawson, deposition of F. Deickmann, deposition of F. H. Noll, Complainants' Exhibit F. H. Lawson's Bill, Complainants' Exhibit Letters Patent No. 279,871.

The following depositions of witnesses for the defendants, to wit:

Deposition of H. Reynolds, of February 24, 1885, and February 25, 1885; deposition of J. J. Hinman, of February 25, 1885; deposition of F. E. Young, of February 26, 1885; deposition of E. M. Peacock, of February 26, 1885; deposition of D. McKenzie, of February 26, 1885; deposition of W. H. Wells, of February 27, 1885; deposition of H. L. Brevoort, of February 27, 1885.

The Exhibits Reynolds Patent No. 304,033, Powers Patent No. 156,591, Smith Patent No. 124,093, O'Toole Patent No. 191,071.

The minutes of the first final hearing, the decision of Judge Wallace thereon, the petition for rehearing (but not the affidavits accompanying the same).

The testimony of J. W. See, of November 22, 1886; the certified copy of file wrapper of T. J. Powers, application filed August 19, 1873.

The Exhibit British Patent No. 3578, of November 3, 1873, of George Haseltine.

The deposition of E. M. Peacock, of October 5, 1886, and of H. L. Brevoort, of October 5th and 6th, 1886.

The minutes of the argument on rehearing, the decision, the decree dismissing the bill, the stipulation as to record and exhibits, petition of appeal, bond, citation, and clerk's certificate.

Very respectfully,

GEO. J. MURRAY,
Sol'c'r for Appellants.
A. v. BRIESEN,
Of Counsel.

263 [Endorsed:] United States Supreme Court. Charles Hoff and Peter Renner, appellants, against The Iron Clad Manufacturing Company. Notice under tenth rule. A. v. Briesen, of counsel for appellants, 229 Broadway, New York city. To E. C. Webb, Esq., attorney for appellee, and F. H. Betts, of counsel.

[Endorsed:] A copy of the within paper has been this day received at this office. Dec. 19, 1887. Betts, Atterbury, Hyde & Betts.

[Stamped:] Office Supreme Court U. S. Filed Dec. 20, 1887. James H. McKenney, clerk.

Supreme Court of the United States.

CITY AND COUNTY OF NEW YORK, *ss:*

John M. Speer, being duly sworn, says that he is twenty-three years of age and upwards, and resides in the city of Hoboken, State of New Jersey; that on the 19th day of December, 1887, between the hours of 9 a. m and 12 m., at No. 22 Cliff St. & No. 120 Broadway, New York city, New York, respectively, he served the annexed notice under tenth rule upon Ernest C. Webb and Frederick H. Betts, the attorney and counsel for appellee respectively in this action, by delivering to and leaving with clerks in charge of their respective offices a true copy thereof.

Deponent further says that he knew the persons served as aforesaid to be the attorney and counsel respectively of the said appellee in this action.

JOHN M. SPEER.

Sworn to before me this 19th day of December, 1887.

[Seal Harry M. Turk, Notary Public, New York County.]

HARRY M. TURK,
Notary Public, N. Y. County.

264 [Endorsed:] Supreme Court U. S. 1887, October term. No. 225. Charles Hoff *et al.*, app'ts, *vs.* The Iron Clad Manufacturing Co. Statement of errors & designation by appellant of parts of record to be printed, with proof of service of notice. Filed Dec'r 20, 1887.

265 Supreme Court of the United States.

CHARLES HOFF and PETER RENNER
vs.
THE IRON CLAD MANUFACTURING COMPANY.

You will please take notice that in pursuance to the tenth rule of this court, as amended during the October term of 1886, and in conformity with the said amendment, the appellees file with the clerk the following as the statement of the parts of the record which the appellee deems necessary for the proper consideration of the appeal herein:

In addition to the portion of the record mentioned, as necessary

for the consideration of the appeal herein, in the notice served herein on behalf of the appellants on December 19th, 1887—

The deposition of Charles Hoff, taken herein on behalf of the complainants on January 16th, 1885; the "Defendant's Exhibit Powers Box Patent," February 27, 1888, being U. S. letters patent No. 156,596, granted to Anna Powers, November 3rd, 1874, for "improvements in paper boxes;" also the Defendant's Exhibit Powers Patent, February 27, 1885, being U. S. letters patent No. 103,079, granted to Timothy J. Powers, dated May 17, 1878; also the order granting a rehearing upon the petition; the "Defendant's Exhibit Clark
266 & Wallace Patent," being U. S. letters patent No. 231,522, granted to Joseph D. Clark and William Wells, November 11, 1879; also the "Defendant's Exhibit Kearnes Patent, being U. S. letters patent No. 199,370, dated January 22, 1878, granted to Isaac Kearnes; also the following testimony, taken on behalf of defendants, being—

Depositions of Edward M. Peacock, taken herein December 27th, 1886, and the Defendant's Exhibits "Cylindrical Pail," "Tapering Pail," "Blank for Cylindrical Pail," "Body for Cylindrical Pail," "Cylindrical Body Crimped," "Cylindrical Body with Crimps Flattened," "Blank for Tapering Body," "Tapering Body," "Tapering Body Crimped," and "Tapering Body with Crimps Flattened."

Deposition of Henry L. Breevoort, taken herein December 27th, 1886, and the Defendant's Exhibit "Brevoort Sketch;" also all other models, sketches, and diagrams introduced and offered herein as exhibits on behalf of the complainants and defendants.

N. Y., March 15, 1888.

E. C. WEBB,
Sol'r for Appellee.
F. H. BETTS,
Of Counsel.

267 [Endorsed:] United States Supreme Court. Charles Hoff and Peter Renner, appellants, against The Iron Clad Manufacturing Company, appellee. Notice under tenth rule. E. C. Webb, Esq., solicitor for appellee. Frederic H. Betts, of counsel. Receipt of a copy of the within notice is hereby admitted. Briesen & Steele, att'ys for appellants. N. Y., March 16, '88.

268 [Endorsed:] Supreme Court U. S. 1887, October term. No. 225. Charles Hoff *et al.*, app'ts, *vs.* The Iron Clad Manufacturing Co. Designation by appellee of parts of record to be printed & proof of service of notice.

[Stamped:] Office Supreme Court U. S. Filed Mar. 17, 1888. James H. McKenney, clerk.

Endorsed on cover: S. New York C. C. U. S. No. 225. Charles Hoff and Peter Renner, appellants, *vs.* The Iron Clad Manufacturing Company. Filed October 13, 1887.

Office Supreme Court U. S.
FILED,
FEB 25 1891
JAMES H. McKENNEY,
CLERK.

Supreme Court of the United States,

OCTOBER TERM, 1890.

—No. 225.—

CHARLES HOFF and PETER RENNER, Appellants,

—*vs.*—

The IRON CLAD MANUFACTURING COMPANY.

BRIEF FOR APPELLANTS.

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SUPREME COURT OF THE UNITED STATES.

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CHARLES HOFF AND PETER RENNER,
vs.
THE IRON CLAD MANUFACTURING CO. } No. 225.

BRIEF FOR APPELLANT.

This case comes here on appeal from the decision of the Circuit Court of the United States for the Southern District of New York, dismissing the bill of complaint.

The bill of complaint alleged infringement by applicant of Letters Patent No. 279,871, granted to appellants, upon the application of the inventor Charles Hoff, on the 19th day of June, 1883.

Proofs were taken, the cause heard, and an opinion filed April 12, 1886, finding the defendants had infringed the first claim of the patent. A decree was ordered to that effect. (Rec. p. 64.)

The defendants filed a petition for rehearing, on the ground of newly discovered evidence. This newly discovered evidence was certain letters patent which defendants had overlooked or not found.

The petition was granted, further evidence taken, the case heard and an opinion filed April 28, 1887, finding defendants did not infringe. A decree was ordered dismissing the bill. (Rec. p. 101.)

I.

HISTORY OF FACTS.

After the grant of the patent in suit, the inventor Mr. Hoff, made some samples of his new hod, one of these was left with a dealer in Cincinnati, Ohio, F. H. Lawson & Co., who were customers of The Iron Clad Manufacturing Co. Mr. Hinman, vice president of the Iron Clad Manufacturing Co., during one of his business trips, called at the house of Lawson & Co., saw the Hoff hod; was impressed with the value of the invention. Had Lawson call Hoff to the Lawson store to meet Hinman, with a view to procuring the new hod for his company. The interview took place; Hoff was induced to send his hod and a copy of his patent to the Iron Clad Company's place of business in New York. Record p. 22, X-Q. 72 and p. 34–5, Hinman. It was received, inspected by the expert and professional inventor of the company Mr H. S. Reynolds.

Reynolds with the Hoff hod and a copy of complainant's patent before him, produced the infringing hod. The defendant upon the application of Reynolds, obtained a patent upon this hod. Record p. 53.

Immediately after the application of Reynolds for the patent, defendants commenced the manufacture of the Reynolds hod. The Hoff hod was returned by the company to Hoff, stating that they did not think it a "practical thing." A. 25, p. 36.

The patentees offered the patent to defendants company, for the small royalty of twenty or twenty-five cents per dozen hods. R. A. 6, p. 34. This offer being rejected, they began the manufacture themselves, and the following Summer were met in the market by defendants infringing hod, "Exhibit Lawson Bill" p. 24. The bill of complaint was immediately prepared and filed August 11, 1884.

II.

THE HOFF INVENTION.

The invention as stated in the specification, relates to "coal hods and similar sheet metal vessels." It consists: "In forming the bucket from a blank, so shaped as to be bent into a cone or funnel-shaped body, then folding the *cone end* of said body in crimps to form the bottom."

"The object is to produce a stronger and better article than those in common use, at a less cost of labor and material—"

The first or method claim involves two steps: *First*, forming a cone shaped body from a suitable blank. *Second*, folding in the cone end of said body in crimp to form the body.

The second claim is for the bucket or hod formed by this process—or method. The best form of the invention is described in this claim, but it is contended that the words: "to form a series of annular ribs or rings of progressively increasing diameter" are words of description, and not of limitation, because the object of the invention, and the invention itself does not consist in forming ribs of any particular shape, but does consist *substantially as described in the specification*, "in folding the cone end of the body in crimps to form the bottom," "which in use sustains the most wear. The hod is therefore strengthened, where strength is most needed." The inventor states in his specification, that he does not limit himself to any particular form of crimp or fold to form the bottom of the hod; for it is evident that the form of the fold may be changed and still have the tapered end of the blank compressed to force the surplus metal to fold over and strengthen the bottom.

It was evident to Hoff, (who like Reynolds, is a skilled mechanic,) that the form of fold might be changed just as Reynolds, after an inspection of the Hoff hod and complainants patent changed it, for after he had conceived the invention. The inventive thought

of first forming a cone or funnel shaped body, then folding the cone end in crimps to form the reinforced bottom, he first did just what Reynolds did, after he learned the Hoff invention from the patent. Dickman's Ans. 11 to 16, p. 16 and 17.

That Hoff was the first one to produce a sheet metal vessel, having the surplus metal of the body folded in crimps to form a reinforced bottom will not be disputed.

III.

PRIOR STATE OF THE ART.

In suppport of this defence several patents, and an old zinc cylinder have been introduced. The defences principally relied upon, and which controlled the last decision of the circuit court is the Hazelton English Patent, No. 3,578 of 1873, being a communication from Timothy Powers, whose patent No. 156,591 was considered by the court at the first hearing, and the "Exhibit Old Zinc Cylinder."

The invention of Powers related to pasteboard boxes and cartridges. It was proposed to make these by rolling paper up in the form of a cylinder, then folding in the end and pasting a piece of paper over the bottom to hold the crimp in place.

The "zinc cylinder" was a plain cylinder of sheet iron, of a size to hold a roll of sheet zinc. These cylinders were made enough longer than the roll of zinc to

receive at each end a wooden head and leave a portion of each end of the cylinder projecting beyond the inserted heads. These wooden heads rested against the ends of the roll of zinc. They were secured in place by nails driven through the periphery of the cylinder into the rims of the heads, after which as an aditional security to hold the heads in place the projecting ends of the cylinder were battered over upon the wooden heads. This operation necessarily presented the inturned portions of the cylinder ends in radial crimps or folds very like those in the bottom or ends of the boxes, or cartridges of Powers except that in the zinc cylinder the folds were only over the edge of the wooden heads, while they extend further towards the axis of the cylinder in the Powers device.

There are two other patents set up for the first time on rehearing, and referred to with some confidence by defendants expert. These are the Kearns wash basin, patent No. 199,370, of January 21, 1888, and the Clark & Wells basket, patent No. 221,522, Nov. 11, 1879. Record p. 98 and 99.

As to the Kearns patent: This is clearly an improvement upon the old form of wash basin which had a downwardly pressed annular groove in the bottom, forming an annular rib upon the under side to protect the under side of the bottom and keep it from rubbing upon the sink, bench, or whatever it might be placed upon. The groove within the basin in the old form

was filled with solder as a protection from wearing. Kearns invention consisted in closing this grove and folding it down flat upon the under side of the bottom, then retinning or galvanizing the pan, which process closed the seams and prevented water from entering to corrode the metal. This is not a bottom forming process, for the bottom and in fact the whole pan was formed before the reinforcing rib was formed.

The Clark and Wells basket: The body of this is formed from a rectangular blank of sheet metal, first rolled up into cylindrical form and the meeting edges seamed or rivited. The basket slope is given to this body by rolling corrugations in the cylinder, then the lower end is turned in to form a seam with the bottom, the seaming process necessarily flattening the corrugations at the lower edge. The bottom is an ordinary one, and secured to the body by the usual seaming process. The folds of this basket, like the fold of the Kerns basin, is to furnish a base for the vessel, to elevate the bottom from whatever it rests upon. Neither this basket or the Kearns basin suggest a bottom forming process of any kind, nor would either suggest Hoffs invention.

There was an attempt made to show that the Kearns device could be made upon the plan of the Hoff invention, and diagrams produced to the court illustrating how this might be done, but these diagrams were made in the light of Hoff's invention and sugges-

ted by it. There is no such suggestion in the Kearns patent or in the state of the art proceeding it, or preceeding Hoff's invention.

The O. Toole patent, No. 191,061, of May 22, 1877, shows a coal hod with an ordinary bottom formed in one piece with the body. The crimps are formed in the body to give it shape as in the Clark and Wells basket. The surplus metal in this case is thrown into the body where strength is not needed, there are no crimps in the bottom. It is stamped up from a flat sheet or blank. Aside from being an impossible or impracticable construction, it suggests no feature of Hoff's invention.

The Smith patent, No. 124,093, Feb. 27, 1872. Record p. 61. This is in the line of Hoffs invention, and does disclose the first step of Hoff's process. This inventor, like Hoff, Reynolds and others in this line of business, recognized the defects in the ordinary coal hods, that is, as he well states it in his specification that: "The bottom is the first to fail and the most difficult to repair." The inventive thought was not, however, the same in both cases. Smith's aim was to produce a hod which, as he states it: "When, from either wear or corrosion, any coal hod fails, the process of repairing is very simple." Hoff's aim was to produce a hod that would not fail—both accomplish the result aimed at. Hoff's invention has verified the old saying; "One ounce of prevention is worth one pound of cure." This

Smith patent also suggests a plug or rivet in the center of the bottom, and his claim is to: *The hod constructed in a single piece or with a plug or rivet in the center.*

Reynolds was as familiar with this hod as he was with the old zinc cylinder. He knew the inventor Smith. The hod was shown to him by Smith before he saw the Hoff hod and Hoff patent. Reynolds, Ans. 52 to 55, p. 31.

Briefly stated the state of the art as shown by the record disclose the following facts:

First: That it it was old to crimp in and fold the ends of cylindrical paper cartridges, and small paper boxes and paste down these folds. Indeed it was common knowledge that the ends or bottom of what is commonly known as satchel bottom paper bags had been so folded and pasted, and it has been known to all, time out of mind, that it was the common custom of all dealers to roll up their goods in paper and then fold the ends of the paper in radial crimps to form the end closures of the packages.

Second: That it was old to turn the edge of metal cylindrical vessels or packages to hold seperate bottoms or heads of the vessel or packages.

Third: That it was old to form bodies of cone and funnel shaped metal vessels by rolling.

Fourth: That metal could be crimped and folded in various forms for various purposes.

This being the state of the art, defendant's theory is, and their theory appears to have been adopted by the circuit judge upon rehearing of this case, that these old devices would suggest to any skilled mechanic the method of constructing the Hoff hod, and the Reynolds hod, as claimed in the complainant's patent, without the exercise of invention.

In view of the facts in this case and the law applicable to such facts as laid down in an almost unbroken line of decisions, the theory adopted by His Honor, the circuit judge, is wrong.

"Where it is shown that several inventors have given their attention to the same subject matter and that the device has gone into general use it is evident that it involved more than mere mechanical skill."

Western Electric Co. vs. Chicago Electric Co. 14 Feld. Rep. 691.

Smith vs. Goodyear. 97—U. S. 486.

Hoe vs. Cottrel. 17 Block 546.

U. S. Stamping Co. vs. King. 17 Black. 55.

Hicks vs. Otto. 19 Fed. Rep. 749.

Palmer vs. Johnson. 34 Fed. Rep. 336.

In the last case His Honor, Judge Wallace, in speaking of complainant's invention said:

"It commended itself to the public as a better device than those which preceded it. These circumstances afford a safer criterion of invention than any subsequent opinion of any expert or intuition of a judge."

That is true in this case. And here it is also true that defendant's officers, their skilled mechanic and inventor, tried to produce the infringing device and failed until the complainant's patent and one of complainant's hods were placed before him to copy from.

The best argument, that the passing from the paper boxes and paper cartridges of Powers, and the old zinc cylinder to the complainant's and defendant's form of hod involved more than mechanical skill, is the fact that the skilled mechanics, and the professional inventor of defendant's company tried and failed to accomplish this very useful result in 1879, and abandoned all their efforts. Tried again in 1883 after they had seen the Hoff hod and knew it would force their old make of hods out of the market, failed again, and finally adopted the Hoff plan as suggested in his patent and succeeded in producing the inferior form of Hoff's invention represented by the "Reynold's Hod" which was the very form Hoff first produced after he had fully conceived the invention and while experimenting to embody his invention in the best form.

Dieckman's testimony, Ans. 6, p. 15. Ans. 11 to 15, p. 16 and 17.

From the last part of this witness, Ans. 16, it is clear that defendants used Hoff's bucket to lay out the plan of the "Reynolds Hod." He says when the hod was brought back from the express office that he picked it up and looked at it and noticed pencil marks on the

bottom. "Then I said look here, Charley, they have been making plans on your bucket to lay the crimps in another way. They want to lay them, I suppose, or calculate to lay them the same as you had them some time ago." He said "I suppose they did; it looks just like it."

This invention like almost all of this day, consists in the embodiment and adaptation of mechanical appliances that are old, but in the language of Mr. Justice Blachford in Crandal vs. Watters, O. G. 21, p. 345, "When the thing appeared it is new and useful, no one saw it before, no one produced it before, it supplies a need, it is at once adopted and all in the trade desire to make and use it; yet it is said to have been perfectfy obvious and not to have been patentable."

In the above case, the invention was in forming sheet metal clinching points upon a buckle loop to be bent over to secure the loop to leather, the preceding state of the art showed the same article with points adapted to be rivited or "up set", the patent was held valid and the defendant held to infringe.

There was no testimony in that case that any one had ever attempted to bend over clinching points for the same specific purpose, although there were analagous uses as in the case of pocket-book clasps. In the case at bar there have been shown repeated attempts to produce complainants invention all of which resulted in failure until Hoff gave the invention to the world by

his patent. The language of Judge Blodget in a recent case tried before himself and Judge Gresham, Brush Electric Co. vs. Ft. Wayne Electric Co. 44, Fed. R. 284, applies (the language referred to is at top of page 286.)

"It seems to be the history of great inventions that the minds of many persons without any concert of action, are at about the same time attracted to the subject, and each sets himself to work to produce the result and meet the public want. One of the experimenters succeeds, while all the rest fail. After the one has succeeded, it is easy to go back to the limbo of these old failures and, in the light of the successful machine, by perhaps slight changes, make these old abortive machines do the work of the successful inventor. But it is the successful experimenter who has shown the way, and he, and he alone, who is entitled to be called the inventor, and be protected by a patent."

In that case the results of the unsuccessful experimenters were before the inventor, "and he may have taken hints and suggestions from the abortive attempts of others"

In this case the abortive attempts as shown by the exhibits set up in defence, would convey no suggestion of the invention. The unsuccessful experimenters Reynolds, Smith and the skilled mechanics and officers of defendants, with the knowledge of what was needed and the Smith hod and old zinc cylinder before them failed. They failed even by the light of complainants patent to make these old abortive attempts now relied upon to anticipate or limit the claim of complainant's patent, do the work of the successful inventor Hoff. See Reynold 1883 Hod.

IV.

EVIDENCE OF INVENTION.

All of the witnesses called by defendants except the professional expert Mr. Brevoort are practical skilled machanics.

Reynolds who produced the infringing structure, was superintendent of construction, and was employed by the defendants as an inventor. X-A. 58–60, p. 32.

Frank Young, superintendent of defendants company. Hinman, its vice-president. Peacock, foreman of defendants tin shop. McKenzie, defendants sheet iron worker.

These men were all familiar with the "Old Zink Cylinder" and with all manner of forming sheet metal and were all familiar with Reynolds attempts and failures to produce a hod like the infringing device until he learned it from complainants patent.

Reynold's models 1 to 5 inclusive show how far he got in 1879, after he had from an examination of the "Old Zinc Cylinder" conceived the idea of making a "coal hod in one or two pieces * * * by crimping or folding the surplus stock to form the bottom." A. 8, p. 26.

That he had such idea in 1879, see Young's testimony Ans. 7, p. 37.

Q. 7. "What did you understand when Reynolds showed you these models, the invention to be that he was seeking to illustrate by them?"

A. "That a coal-hod could be made in one piece by turning the lower edge in by lapping or crimping to form the bottom."

Peacock's testimony, p. 40.

Q. 6. "During the time, have you known of Mr. Reynolds making any inventions or improvements in machines, and articles of the class made by the company? And if so, please state what inventions or improvements he has made to your knowledge."

A. "When he first came to the iron clad, it was introducing a new coal-hod (1873); since then he has had several patents on the same; also a watering-pot, and machines for hemming heel counters. He has also made improvements in metallic shingles, with minor improvements and methods of manufacturing goods. In fact he has been constantly employed in that line."

Q. 7. "What improvements has he made in coal-hods?"

A. "Several, the principal of which I consider the forming of the bottom and body of one piece by lapping or folding the sides over at right angles, or nearly to form the bottom."

Q. 8. "When did you first know of his making that invention?"

A. "About December 8th to 11th, 1879."

Q. 14. "Please hear the examiner read question and answer seven and state what you mean when you say "the forming of the bottom and body in one piece."

A. "I mean, as stated in previous answer, the folding or turning in a portion of the body by lapping or crimping to form folds by which to take up the surplus stock, thereby forming the bottom."

McKenzie, page 45.

Q. 13. "Did you understand, when Mr. Reynolds showed you the model, what the invention was, he was trying to show by the model?"

A. "Yes, sir; I did."

Q. 14. "What did you understand it to be?"

A. "I understood it to be the body and bottom in one piece, the body folded to make the bottom."

Reynolds continued to think about inventing a coal-hod in a single piece, with the end folded in crimps to form the bottom.

Peacock's testimony, page 41.

Q. 21. "After Mr. Reynolds showed you the models in December, 1879 of his coal-hod invention, what did he do next in relation to that invention?"

A. "He worked at it for a while until he seemed to think it practicable, and then left it for something else.

Q. 22. "Did he take it up again?"

A. "Yes."

Q. 23. "When?"

A. "After occasionally mentioning it, he commenced to make the tools for it's manufacture in the latter part of 1883. Page 43, *X-Q.* 36. Did you ever see a complete coal-hod made of the form shown by the Reynolds Models 1 to 5 inclusive.?"

A. "Yes, sir."

Q. 37. "When?"

A. "When he first commenced to work on the hod, in the latter part of 1883."

X-Q. 38. "Were there more than one of these hods made, and were they ready for sale?"

A. "There were quite a number made, but none finished or put upon the market."

X-Q. 39. "Is defendant's exhibit Reynolds, December, 1883 hod, one of these completed hods that was not finished for the 'market.'?"

A. "It is somewhat similar, but not as near completion as some, there are some that were all finished, ready to put the hoops on—I believe one or two had hoops on."

X-Q. 40. "Do you know why these were not finished and put upon the market?"

A. "I do not."

Here we have the final failure of this skilled mechanic and inventor to embody his conception of 1879, derived from the Old Zinc Cylinder and the Smith Patent, in a practicable merchantable hod. It is evident to any one examining this "December, 1883 Hod," that the officers of defendants company know why it was not put upon the market. It is quite evident, that it never suggested the structure complained of as an infringement.

It is also quite evident, that if the Old Zinc Cylinder, or the Power's Boxes and Cartridges, would suggest to a skilled mechanic the invention here in issue, Reynolds would have produced in 1879—"A coal-hod made in one piece with the end crimped or folded in, to form the bottom."

What better evidence of invention is it possible to produce?

In this case as in Hoe vs. Cottrell it may be truly said: "Although it may seem difficult, from the standpoint of after time, that a particular thing should have required the exercise of invention, still the fact that when introduced its utility was universally recognized,

rendered it evident, that in order to make such invention, changes were necessary, which the skill of the mechanic would not suggest, and that the work was practically more difficult than to the theorist it might seem."

V.

UTILITY AS EVIDENCE OF INVENTION.

The utility of this invention has been universally recognized.

The defendants commenced the manufacture of the infringing hod in the Summer of 1884. The testimony of defendants for first hearing was taken February, 1885.

Reynolds' testimony page 33.

X-Q. 10. "Are all, or nearly all, the hods made by the company at present made upon your plan? I mean like the hod shown in your patent, and represented by the Reynolds Hods here in evidence?"

A. "The greatest portion of them are made like the Reynolds Hod."

J. J. Hinman, page 35, *A.* 19.

"About one-half of the hods we have manufactured and sold, have been of the Reynolds Hod, up to the present time."

Peacock, *X-A.* 46, page 43.

"Would judge that about one-half of all hods made in the past eight months were like 'Defendants Exhibit' Reynolds Hod."

Peacock on rehearing June 12, 1886, page 90.

"Could not say how many Reynolds Hods they were making. *X-Q.* 17. It might be more than ten to one of the old kind, and it might be less."

Hinman, vice-president of the company immediately recognized the value of the invention. So soon as he saw the Hoff Hod, he hunted up the inventor and induced him to send a sample of his hod and copy of his patent on to his company.

Lawson's testimony, *Q.* 11, page 12.

Hinman's *A.* 6, page 34.

F. H. Lawson "considered the Hoff Hod the best in the market." *A.* 11, page 12. His house sold over 500 dozen the first season they came out. *A.* 7, page 12.

VI.

INFRINGEMENT.

The witness Peacock, in his *A.* 26, page 41, describes the operation of making defendant's hod and introduced the Exhibits, "First Step," "Second Step" and "Third Step."

Q. 26. "Please describe the operation of making it," Reynolds Hod.

A. "Reynolds' blank is cut from a sheet of iron, and then formed into the shape of Exhibit First Step—(This is a cone shaped body.) It is then put upon a form or die, the shape of Exhibit Second Step and struck with a metal force, having corrugations the reverse of Second Step, which forms it into that

shape. It is then put on a form shape of Exhibit Third Step and struck with a metal force, which closes the corrugations and forms part of the bottom."

This is the method described in the complainant's patent.

There is no difference between the experts as to what the first claim of the patent means: Mr. Breevoort, defendant's expert in concluding his *A.* 6, page 48, says:

"I do not understand that the vessel need be conical at any portion other than that which is to form the bottom; the rest of the vessel may be cylindrical or of any other desired shape."

"Now it is evident that this is not a patent of any kind of a bottom made by compressing the metal upon itself, for this is not, as I understand it, claimed; but, on the other hand, the patent is for a vessel having a bottom formed substantially as therein described, that is to say taking the first claim, which is for a process, I find that the said claim first set forth, that a cone shaped body is to be formed, and then that this cone shaped body is to be folded into crimps, so that the bottom can be formed. I suppose, also, that the claim involves the third step of forcing the bottom flat."

Mr. See says: p. 74. "If I were called upon briefly to define the Hoff system, I should say that it consists in first giving to the bottom a plain cone form by the act of bending and then crimp the cone shaped bottom into flat form."

There are therefore three steps in this process:

First: Forming a cone shaped body, the object of doing this is, as the expert Mr. See clearly points out, to bring the metal focally disposed to receive the crimping die. The formation of the cone shaped body, is one step in the direction of forming the bottom.

The second step is forming preliminary crimps, so as to still further cone the bottom end of the vessel, and define the lines upon which the metal must fold. This step is practiced in the production of both the Hoff and the Reynolds' hod.

The third step in the process, is forcing the bottom flat. This step is also performed in the production of both hods. There is not one particle of difference, so far as the steps and processes are concerned, their practice is precisely the same in both.

Now if the blank had been previously cut to the best shape for a radially crimped bottom as suggested in Ans. 55 of Ferdinand Dieckman record page 21, this step would complete the bucket just as completely as the Hoff bucket is by the steps described in his patent, and this would undoubtedly be a coal hod formed of a a single piece, having the cone end folded in crimps to form the bottom, but defendant's expert, and perhaps with the advice of his counsel, evidently saw that this would be too near the strict terms of complainants' patent. It was therefore, necessary, in order to get around the patent, that the bottom should not appear to be in one piece, and to avoid such a palpable evasion the blank is first mutilated by cutting away more than was necessary of the cone end. This mutilation renders it necessary in the construction of the Reynolds hod, that four more steps be taken; first cutting out the little oval shaped piece from a part of the metal

that was cut away from the cone, second stamping it up with the crimp around its edge and a downwardly projecting edge forming in fact a dish shaped rivet, third placing the mutilated hod on the former and triming out the hole left in it by mutilating the blank, and fourth placing the little patch in the center and folding or crimping over its edges to hold it in place. It is evident, therefore, that it requires more labor to make the infringing hod than it does to make the best form of the invention shown in the Hoff patent and the Hoff hod, and it is also evident that the Hoff hod is a much better and stronger article.

It often hapens when an invention is perfected and given to the world in a patent that skilled artisans may from an examination of it see how they can improve upon the device and obtain a patent upon the improvements. Indeed it is seldom that the inventor in his patent shows the best form of embodying his invention, and it is not necessary so long as he shows the best form known to him, the inventor, this he is required by law to do, he is not required by the law to show all the inferior modifications of his invention. It would be a singular construction of the law that would permit any one with the inventors patent and a sample of the inventors device before him, to work out an inferior modification suggested by the patent itself, and thus pirate a valuable invention.

The second claim of the patent is: As a new article of manufacture, a coal hod formed of a single piece and having its bottom crimped or folded to form a series of annular ribs or rings of progressively increasing diameter, substantially as shown and described.

This claim is not artistically drawn but taken in connection with the specification, its meaning is clear, and would not be misunderstood by any skilled mechanic who wanted to understand it.

It would be a harsh construction that would limit it to the best form of Hoff's invention and exclude the inferior form which the patent would teach any skilled mechanic to make as it did Reynolds.

A liberal construction of this claim would clearly include defendants structure here, as this court held defendants' device of a two piece blower case to be an infringement of a claim for a blower case made in one piece. Hyndman vs. Roots, 97. U. S., 244. The infringer in that case claimed there was no infringement because the claim was to the case in one piece, while his was in two pieces, and that his method of construction was the better one.

The supreme court speaking by Justice Swayne, answered that claim, and the language is entirely applicable to the case at bar:

"Why is this, and what are his objects and purposes? We can imagine none but to gather where others have sown, and to escape by similation and subterfuge the consequence which the

act of Congress prescribe for the unlawful appropriation of such property. There is scarcely a thought expressed in the work of the appellees so to speak, that is not found substantially transferred or closely copied in that of appellant."

"The points of identity are palpable and conclusive."

To the same effect is Brown Manufacturing Co. vs. Deere & Co. 28. O. G., 1187.

In that case defendants did not infringe the litteral terms of conpainants claim, but he infringed the invention and the court construed the claim liberally to protect the real invention just as this court and the circuit courts did the claim of the Schillinger patent. 130. U. S., 456.

Mr. Brevoort says: p. 47.

"The only peculiarity of the vessel shown in the drawings consists in the structure of the bottom. This is made in the following way: The metal which is to form the bottom is brought into cone shape, and this cone then has circumferential grooves made around it, the metal being forced inward to form the grooves."

"I do not understand that it is material exactly what shape these grooves have, also, I understand that they may be truly circumferential or that they might be one long groove in spiral form."

If they might be one long groove in a spiral form, why might they not be four short grooves in a spiral form? And if so, how much twist must these grooves have? In other words, how much should they deviate from a radial line to be the Hoff grooves and yet not be the Reynolds groove? Is an inventor—who has pro-

duced a valuable article, one whose value is immediately recognized by the public, has gone into general use and created a revolution in the branch of art to which his invention relates—to be robbed of the fruits of his genius by hair-splitting discriminations? Hoff has shown the best form of crimp or fold for his bottom; he is the first one who ever made a sheet metal vessel having the ends folded in crimps to form the bottom, and has a right to treat all as infringers who merely substitute an old form of crimp, one well known at the date of his invention—for the preferred form he has shown and described—even though the change were an improvement, which the iron clad hod is not.

"A patent should be construed in a liberal spirit to sustain the just claim of the inventon. * * * Liberality rather than strictness should prevail where the fate of a patent is involved, and the question to be decided is whether the inventor shall hold or lose the fruits of his genius and labors." Rubber Co. vs. Goodyear 9. Wall. 788.

Whether one device is an infringement of another does not depend upon whether the mechanical constructions are different, but whether the new idea is completely embodied in the structure as formed. A mere mechanical subititute for a thing must be regarded as the thing itself.

VII.

TRIAL IN THE CIRCUIT COURT.

When the suit was first filed and the proofs taken, the defense principally relied upon, was that Reynolds and not Hoff, was the inventor of the device in controversy.

Clause 9 of defendants' answer alleges that:

"Long before the invention or discovery thereof, by the said Charles Hoff, the same was known to and had been invented and discovered by Henry S. Reynolds."

And in clause ten the answer alleges that:

"The same thing in all essential and material features and particulars, and the same principle and combination had been previous to the alleged invention of Charles Hoff, known to and used by the following named persons, to-wit: Henry S. Reynolds, Frank E. Young, Edward M. Peacock, David McKenzie, Henry L. Brevoort, and Henry W. Shepard, and others, all of which use and knowledge was prior to the pretended invention of said Hoff."

In clause 11th, the manufacture of the alleged infringing hod is justified, because defendants are working under letters patent 304,033, granted upon the alleged invention of Henry S. Reynolds, for the same thing, shown, described and claimed in the Hoff patent.

The witnesses who swear to the alleged prior invention of Reynods are: Reynolds himself; Frank E. Young, superintendent of defendants' company, Edward M. Peacock, foreman of their tin-shop, and David McKenzie, one of their own workmen. These witnesses were familiar, as every one who works in

sheet metal is, with the old zinc-cylinder; yet they all recognize the great value of the Reynolds invention, which is alleged to anticipate Hoff's.

During the whole argument of the case at the original hearing, and throughout defendants' brief, this seemed to be the defense mainly relied upon. This defense failing as it unquestionably should—for it is perfectly clear that the alleged experiments and attempts of Reynolds were pigeon-holed actually, and never would have seen the light of day had it not been for the invention of Hoff, which was called to his attention—it then occured to defendants to change their tactics.

The invention is entirely too valuable to lose. Failing to obtain the monopoly of it for itself, the next best thing, of course, was to prevent defendant from being shut out of the market, as no Court would believe that Reynolds had made the invention. As it was evident that the invention would supersede every other coal-hod in the market, and that a coal-hod could not be produced, without practicing the first claim of the Hoff invention, the only remedy left to the defendants was the one they took: To endeavor to have the case reopened on alleged newly discovered evidence, and with the light they had obtained from the former decision, to endeavor to so limit complainants' invention, as to leave the Reynolds hod outside of it. In order to do this it was necessary to show that what Reynolds

did was merely a mechanical deviation from the Powers-Hazeltine patent, or the old zinc-cylinder, instead of as the testimony shows it to be a mere mechanical deviation from the Hoff patent.

It is candidly submitted that there is not a single feature shown in the alleged newly discovered evidence that has the slightest bearing upon the case, additional to what had been presented at the first hearing.

The only reliance for reopening the case was based upon the Hazeltine-English patent, which was granted upon a communication from Timothy J. Powers, whose two patents were set up in defendant's answer and relied upon at the hearing as limiting Hoff's invention.

Defendants however, succeeded—if not in convincing the Court that the newly discovered evidence was material,—at least in having an opportunity to try their case upon a new issue. Defendants' position at the rehearing was that the Reynolds hod involves no invention whatever over the references set up. That the Powers patent, the Hazelton-English patent, and the old zinc-cylinder would suggest to any ordinary mechanic just how to make the infringing hod.

VII.

HOFF'S CLAIMS NOT LIMITED BY THE REFERENCES.

The process of the patent can not be practiced upon cylindrical vessels. Not one of the alleged antici-

pating or limiting devices show or describe the first step in the Hoff process as practiced in the production of the Reynnlds hod or the Hoff hod.

None of these devices presents the metal focally disposed to the crimping die, and, unless it is so disposed, the bottom of the vessel cannot be made as shown in either the Hoff or the Reynolds' hod. By this, it is not meant, that it is impossible to fold metal in any shape; it can be done. A skilled mechanic can shape metal in all manner of curious forms; there is no doubt, that by certain processes, cylindrical vessels can be formed with crimped bottoms; but, they cannot be formed with a crimped bottom, unless the preliminary step of cone rolling is applied and this had never been suggested prior to Hoff's invention.

This is sworn to by Mr. See, and is practically admitted by the defendants. Defendants have produced cylindrical vessels, to exhibit to the court at the hearing; having crimped bottoms, but how were these bottoms produced? Not one word on this subject have we from the learned expert Mr. Brevoort, nor from the skilled mechanic Mr. Peacock, who made these vessels. Was the patented process used? Neither witness says it was. It is a significant circumstance also, that, if the folding in of bottoms of cylindrical vessels would suggest the invention here in issue, that if it was such an easy thing to do, the defendants have not been able to show a single one of these vessels, produced

prior to the date of complainants' patent, nor have they ever attempted to practice the bottom crimping process upon any of their own cylindrical vessels, though they manufacture more cylindrical vessels than they do coal-hods.

Complainant's expert, Mr. See, is a practical as well as theoretical mechanic, a well known writer upon mechanical subjects, and his books upon these subjects have been adopted as text books in technical educational institutions. Ans. 2., p. 71.

His testimony that the Hoff process is not suggested in any of the exhibits prior in date to Hoff's invention, and that Hoff's process could not be applied to cylindrical vessels is clear and uneqvivocal. Rec. p. 81 *et seq.*

X-Q. 40. Now take these two—the old cylindrical body and the old conical body—and state whether or not in your opinion it would require invention to form or partially form the bottom of the conical vessel by crimping or folding-in the material at its smallest end and then, flattening the folded-in portions, provided precisely the same method of forming the bottom by crimping and flattening had previously been practiced in the cylindrical vessel?

[Objected to as incompetent, because misleading and the facts stated in the question did not exist at the date of Hoff's invention.]

A. In my opinion, under the circumstances mentioned in your question, as I understand it, there would be invention in the method of forming the body of a vessel by first forming a cone-shaped body from a suitable blank, then folding in the cone-end of said body.

X-Q. 41. What difference would there be in the method or process of crimping, in the cases supposed in the 40th *X-Q.* question?

A. The methods would be entirely different—the crimping in one case being done upon metal projecting axially, and in the other case upon metal projecting focally. In the latter case the metal has already been arranged upon the road toward flattening, and the crimping is done by downward motions only. Let me illustrate more fully. Take two vessels—one cylindrical, one conical—both with portions projecting beyond the level of the intended bottom. Clamp the two vessels in presses ready for the bottom forming operation. Smash the projecting portion of the conical vessel directly downward, and this simple downward smashing act completes the flat bottom, which was previously partially formed in the act of producing the cone-shaped body. Smash the projecting portions of the cylindrical vessel by the same simple downward act, and you have nothing in the way of a bottom. You have simply spoiled your cylindrical vessel and ruined it beyond all hope. Part of the smashed metal has moved inward and part of it outward, and the thing is a total wreck.

X-Q. 42. Have you ever practiced what you call the Hoff process of crimping on a cylindridal vessel?

A. I have not spoken of the Hoff process of crimping. I do not think there is such a process. If you refer to the crimping step of the Hoff complete process, I will say, that step, as involved in his process, can not be employed on a cylindrical vessel. If you ask me if I have ever smashed downward upon the end metal of cylindrical vessels, I answer yes, frequently, and know exactly what becomes of the metal, and it is precisely as I have stated in my previous answer.

X-Q. 43. Can the process of crimping-in radially, as practiced by the defendant in the manufacture of coal-hods like the one you

have examined, be practically employed in crimping-in the end of a cylindrical vessel whose sides are parallel?

A. If in the smashing process it be desired to lay the folds of the metal symmetrically, and for that purpose the smashing dies be provided with radial ribs, these radial ribs would produce the radial flutes of the defendants' hod if brought directly downward squarely upon focally arranged metal. If such flat-faced radial ribs were brought directly downward upon cylindrically arranged metal the effect would be to more hopelessly mutilate such projecting metal, and entirely destroy the utility as bottom-forming material. In working on cylindrical metal, coning dies must be used to start the metal inward. In the Hoff process, the inward start of the metal is given before the crimping or smashing is begun.

X-Q. 44. In answering cross-question 41, did you assume that the dies to be used in each case would be identically the same in shape?

A. In answering the question referred to, I assumed similar dies acting upon dissimilar vessel bodies.

X-Q. 45. Would not an ordinary mechanic know that there would have to be a difference in the angle of the radial ribs on the dies used for a cylindrical body, as compared with those used for a tapering body?

A. I think that the skilled mechanic, after reading the Hoff patent, would readily see that the new process could be carried out by dies totally inapplicable in connection with cylindrical vessels.

Question repeated.

[Objected to as fully answered, and the further reason that the state of the art does not disclose, prior to the Hoff invention, the process disclosed in his patent.]

By Mr. Webb. What the state of the art discloses will be discussed at the proper time. The questions referred to do not mention the Hoff process, but assume certain things which are clearly stated, and the witness is intelligent enough to understand them. The last answer is evasive, and the question is therefore repeated.

A. If you refer to a time prior to the Hoff invention, I answer that the skilled mechanic would not know about this matter. In my opinion, the skilled mechanic at that early time would actually have coned the dies more for the conical vessel than for the cylindrical vessel. In other words, if he was led to the shape of his dies by the shape of his vessel, he would be proceeding in a course directly opposite to the course now seen to be the correct one.

X-Q. 47. Answer the question, supposing it to refer to a date subsequent to the Hoff patent.

[Objected to as immaterial and irrelevant, because the infringing device is not constructed as implied in the question.]

A. The skilled mechanic, after being enlightened by the Hoff patent, would find that a new process was before him, capable of being executed in a manner and by appliances not available in connection with cylindrical vessels. While he might execute the new process by the old appliances he would see that similar appliances and better processes had been available.

[Answer objected to as evasive and irresponsive.]

X-Q. 48. Can the bottom of a cylindrical vessel be formed by crimping or folding in the material of the parallel sides at one end in radial folds, and these folds be compressed to form a flat bottom, and the central aperture closed by a piece of metal as shown in defendants' hod?

A. There would be difficulty in disposing of the excessive surplus metal, but I feel satisfied that a bottom could be formed in the manner suggested.

X-Q. 49. What is the new result achieved by crimping or folding in radially the lower parts of a circular structure whose sides converge, as compared with crimping or folding in radially the lower parts of a structure whose sides are parallel? And I ask you to bear in mind that this question relates to the result achieved in each case by the crimping operation.

A. In the cylindrical vessel all portions of the metal turned in by the crimping measure the same, and the inner portions of the completed bottom require that we shall dispose of the same amount of metal as found at the outer portions. In the conical form of the vessel the amount of metal to be disposed of in the bottom of the vessel by the crimping act lessens toward the center of the bottom. In cylindrical vessels the projecting metal to be crimped presents itself directly edgewise to crimping dies moving toward the bottom. In conical vessels the metal presents itself to the dies angularly. In cylindrical vessels the metal to be crimped must first of all be started inward. In conical vessels the metal to be crimped presents itself already inwardly. In cylindrical vessels the crimping operation must focalize the metal as well as flatten it. In conical vessels the flattening dies find the metal already disposed focally. In cylindrical vessels, the vessel while being crimped must be perfectly clamped to the lower die to prevent the upsetting of the other end of the cylinder which would otherwise be subjected to the compressive strain due to the crimping. In conical vessels, the lower die acting upward within the cone imposes only tensional strains on the metal. No damaging compression acts upon the lower edge of the metal.

The equity of this case is clearly with appellants. Defendants cause from the time its vice president saw the Hoff hod and induced the inventor to send it and a copy of his patent to defendants company has been

unfair, dishonest. Every doubt should be resolved against it.

The evidence in this case leaves little doubt that Hoff produced a very valuable invention and that the defendant deliberately pirated it. Mr. Robinson in his excellent work on "Patents," Sec. 109, Vol. 1, lays down the correct rule in cases of this kind: "Where reasonable doubt exists the same liberal spirit which characterizes both the enactment and application of the law awards the benefit of the doubt to the inventor."

This is the rule laid down by the U. S. courts:

"*The burden of proof of want of novelty rests upon him who avers it, and every reasonable doubt should be resolved against him.* It follows from this declaration of the Supreme Court, and it has been expressly decided by several Circuit Courts, that *novelty can only be negatived by proof which puts the facts beyond reasonable doubt.* Under this rule *a patent enjoys the same presumption of novelty* that an unconvicted prisoner does of innocence. Unlike most civil titles it is not liable to be overthrown by a mere preponderance of evidence."

Wood vs. Mill Co. 4 Fish 550.

In order to anticipate an invention the alleged prior device must be shown and proved to accomplish what is claimed by the patent.

Railroad Co. vs. Sayles, 97 U. S. 554.

The alleged prior device must be substantially the same in principal of construction, the same in mode of operation, the same in result produced. If the